RELIGIOUS IDENTITY AND INTERRELIGIOUS COMMUNICATIONS: PREDICTING IN-GROUP AND OUTGROUP BIAS WITH TOPIC-SENTIMENT ANALYSIS

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Intergroup relations and the factors affecting them constitute a subject of recurring interest within the academic community. Social identity theory suggests that group membership and the value we assign to it drives the expression of in-group favoritism and outgroup prejudice, among other intergroup phenomena. The present study examines how (ir)religious identities are related to topic-sentiment polarization in the form of positive in-group and negative outgroup bias during interreligious debates in YouTube commentaries. Drawing from the propositions of social identity theory, six hypotheses were tested. The data for the study, a product of a natural experiment, are comments posted on YouTube commentary sections featuring videos of interreligious debates between (a) Christian and atheist or (b) Christian and Muslim speakers. Using topic-sentiment analysis, a multistage method of topic modeling with latent semantic analysis (LSA) and sentiment analysis, 52,607 comments, for the Christian - atheist debates, and 24,179 comments, for the Christian - Muslim debates, were analyzed. The results offer support (or partial support) to the hypotheses demonstrating identity-specific instances of topic-sentiment polarization to the predicted direction. The study offers valuable insights for the relevance of social identity theory in real-world interreligious interactions, while the successful application of topic-sentiment analysis lends support for the more systematic utilization of this method in the context of social identity theory.

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CHAPTER 1

INTRODUCTION

The relationship between identity and intergroup relations has received extensive attention within the academic community in a number of disciplines. Several theories have been proposed in order to account for the ways and the conditions in which individual and social characteristics shape our perceptions, beliefs, and exchanges with others. Social identity theory (SIT) was developed forty years ago by Tajfel (1978) and Tajfel and Turner (1979) and has influenced the work of numerous social researchers since then. The theory basically argues that our social memberships are instrumental for the emergence of our social identities and eventually structure how we understand ourselves, what we believe, and how we interact with others who belong or do not belong to the same group with us (Brown 2000, Hogg, Terry, and White 1995, Tajfel and Turner 1979). Social identities are largely relational and take form through a process that attempts to maximize the differences from the out-group (Trepte 2006, Turner et al. 1987, Yuki 2003). Due to the inherent evaluative components of one's social identity (Tajfel 1979, Trepte 2006, Ysseldyk, Matheson, and Anisman 2010), individuals tend to exhibit in-group favoritism and out-group bias (Hogg and Terry 2000, Tajfel and Turner 1979).

Despite the extensive research activity that has taken place in the context of social identity theory, the effect of religious membership as a social identity has been rather neglected (see Hogg, Adelman, & Blagg 2010, Ysseldyk, Matheson, and Anisman 2010). This fact is quite surprising if one considers the significant normative power of religion in people's lives (Hogg, Adelman, & Blagg 2010, Hunsberger & Jackson 2005, Silberman 2005) and the well-established relationship between religion and social phenomena such as prejudice (Allport 1966, Altemeyer and Hunsberger 1992, Fullerton and Hunsberger 1982,

Haslam 2006, Laythe, Finkel, Bringle, & Kirkpatrick 2002), stereotyping (Bain et al. 2013, Edgell et al. 2006), bigotry (Eisinga, Konig, and Scheepers 1995, Gall 2003, Reid 2008, Schuck 1984), and intergroup conflict (Neuberg et al. 2014, Seul 1999).

The present study seeks to contribute to research pertaining to social identity theory (SIT) and religion by examining the relationship between (ir)religious identities and topic-sentiment polarization in online interreligious commentaries. The thesis document begins with a presentation of previous work on SIT and its extensions for computer-mediated settings and a discussion on religion as a social identity. Proper emphasis is placed on areas of possible theoretical contribution such as (a) in-group favoritism and out-group bias, (b) group meaning, (c) stereotyping, and (d) identity work and identity politics.

Drawing from the propositions of SIT and the existing literature on the examined (ir)religious identities, it is hypothesized that, in the context of interreligious debates, (H_1) topics will tend to reflect the (ir)religious identities of the users, (H_2) individuals will be more likely to discuss topics associated with their own (ir)religious identity (in-group favoritism), (H_{3a}) individuals will be more likely to use positive language when they discuss topics associated with their own (ir)religious identity (positive in-group bias), (H_{3b}) individuals will be more likely to use negative language when they discuss topics associated with the (ir)religious identity of the other group (negative out-group bias), (H_4) atheists will tend to exhibit fewer instances of positive in-group and negative outgroup bias than Christians, and (H_5) Christians will tend to exhibit comparable instances of positive in-group and negative outgroup bias as Muslims.

The data for the study, collected in late January – early February 2016, are comments posted on YouTube commentary sections featuring videos of interreligious debates between (a) Christian and atheist or (b) Christian and Muslim speakers. The two

types of debates are treated as separate case studies where the selection criteria and the conditions of the debate have been standardized as much as possible. In other words, the present research constitutes a natural experiment in which particular in-groups and out-groups are primed. Only comments whose users were (self) identified as Christians, atheists, or Muslims were entered in the analysis.

Using topic-sentiment analysis, a multistage method of topic modeling with latent semantic analysis (LSA) and sentiment analysis, 52,607 comments for the Christian – atheist debates and 24,179 comments for the Christian – Muslim debates were analyzed. The results offer support (or partial support) to the hypotheses demonstrating identity-specific instances of topic-sentiment polarization to the predicted direction. In-group and out-group bias are found to be expressed in more consistent, predictable ways for the Christian – Muslim debates than the Christian – atheist debates. This seems to be explained based on the normalizing effect of religious doctrines and the inherently negative ideological relation of atheism[1] to religion, spilling into the more negative usage of language.

In conclusion, the present research theoretically contributes to the literature of social identity theory and religion by providing explanatory insights on real-world interreligious communications. Provided that the vast majority of the studies on social identity have taken place on artificial laboratory conditions and the rest are based on survey research which does not account for real interactions, my study constitutes a step forward taking advantage of the best the two worlds can offer. At the same time, the successful application of topic-sentiment analysis for the study of intergroup processes encourages the more systematic utilization of this tool in the context of social identity theory.

[1] A-theism where alpha privative connotes negation or absence of theism.

CHAPTER 2

LITERATURE REVIEW

2.1 Social Identity Theory

Social identity theory (SIT) was formulated by Tajfel (1978, 1979) and Tajfel and Turner (1979). It is broadly used in the field of social psychology to interpret perceptions and actions through group dynamics (Trepte 2006). While the initial conceptualizations of the theory emerged from accounts of racism, prejudice and differential treatment (Tajfel, 1963), it grew to encompass more comprehensive forms of group phenomena and intergroup relations as they are shaped by individuals' social identities.

Tajfel and Turner (1986) differentiated between individual identity, reflected in contexts which involve interpersonal exchanges, and social identity, reflected in collective contexts in which group mechanisms are activated. A social group can be defined as a set of individuals who acknowledge themselves and are recognized by other people as members of a given group (Tajfel and Turner 1979). But, social identities do not merely rest on the acknowledgment of group belonging. According to Tajfel (1972: 292 in Turner 1975: 7), social identities constitute "the individual's knowledge that he belongs to certain social groups together with some emotional and value significance to him of his group membership." More specifically, groups are organized around three important dimensions: (1) the recognition of group belonging (cognitive aspect), (2) the favorable or unfavorable assessment of this group belonging (evaluative aspect), and (3) the favorable or unfavorable sentiments related to the group belonging and its assessment (emotional aspect) (Tajfel 1979, Trepte 2006, Ysseldyk, Matheson, and Anisman 2010).

The basic premise of the theory is that social identity stems from the social categories we belong (Brown 2000) which, in turn, reflect and determine the characteristics

that members of a given group should possess and the practices and behaviors they should engage in (Hogg, Terry, and White 1995). Similarly, collective behaviors develop from cognitive images of the individual with reference to the belonging in a common social category where there is psychological unity between the individual and the collective entity (Yuki 2003). In strictly intergroup exchanges individuals interact almost exclusively as delegates of the social categories they belong and their personal features 'zoom out' due to the salience of the given social groupings (Hornsey 2008). Sources of social identity primarily entail broader social memberships such as race, ethnicity, gender, and nationality and their underlying forces are based upon the nature of the associations between the relevant sub-groups (Hogg et al. 1995).

Social identity theory is founded on four basic concepts: social categorization, social comparison, social identity, and self-esteem (Tajfel 1979).

2.1.1 Social Categorization

Due to the inherent limitations of humans to manage information, people resort to classifications and outlines to facilitate its processing (Tajfel 1979). Apart from the generic categorization of objects and abstract concepts, we classify individuals into groups to organize our comprehension of the social environment and to regulate our social exchanges (Trepte 2006). In this sense, social categorizations construct and determine a person's social location (Tajfel and Turner 1979). Specifically, the distinction between in-group and out-group is considered the bedrock of the development and solidification of social identities. The in-group itself and its defining characteristics are demarcated in relation to the out-group (Yuki 2003).

Through the use of the “minimal group paradigm”, Tajfel (1979) initially pointed out that the simple assignment of people in different groups increased the likelihood of exhibiting prejudicial behavior to the members of the out-group and preferential treatment to their fellow group members. These findings have been replicated in multiple studies (Allen and Wilder 1975, Billig and Tajfel 1973, Brewer and Silver 1978, Doise and Sinclair 1973). Drawing from these observations, Turner (1985) and Turner and his colleagues (1987) formulated the self-categorization theory (SCT) in order to describe the cognitive mechanisms of categorization and demonstrate how concerted behavioral patterns may arise from the psychological absorption of common group membership and its germane characteristics (see also Brown 2000, Huddy 2001).

Instead of describing interpersonal and intergroup processes in dichotomous terms, SCT argues for the existence of three influential levels of classification, namely the overarching *human identity* tied to our membership to the human community; *individual identities* emerging through classifications and comparison between people; and a social space in-between where our *social identities* - products of intergroup processes - rest (Hornsey 2008, Turner et al. 1987). Although social identity is a crucial component of SIT and SCT, the latter clarifies how social identity dictates a shift from interactions among individuals to group interactions as part of the contextual salience of self-categorization (Trepte 2006, Turner et al. 1987). Categorization takes place when people understand the differences among themselves and their fellow group members as smaller than the disparities between them and those belonging to the out-group (Trepte 2006, Turner et al. 1987, Yuki 2003). In turn, categorization exaggerates the degree of alleged in-group commonalities and intergroup divergence resulting in breaks between groups, the extraction of meaning out of social experiences, and the detection of contextual elements

suitable to guide our behavior in specific situations (Hogg et al. 1995). The perceived similarity and dissimilarity are intensified when groupings are salient, of great significance, and of great pertinence to the person (Abrams and Hogg 1988, Trepte 2006).

Apart from highlighting the shared characteristics among the members of the same group, categorization also heightens the sense of resemblance of any given individual with the group's prototype (Hogg, Terry, and White 1995). Prototypes constitute exemplifications of the characteristic convictions, views, and patterns of conduct, among others, of a collective membership and they are organized on the basis of similar information to which members of the same group are exposed (Fiske and Taylor 1991, Hogg et al. 1995). At the same time, they enhance group boundaries by reassuring the greatest possible in-group similarity and the greatest possible intergroup distinctions (Hogg et al. 1995, Hogg and Terry 2000, Yuki 2003). A prototype can be a real or imaginary being that encapsulates the most predominant characteristics of those belonging to the group (Rosch 1978). Scholars of the self-categorization theory argue that people's view about their closeness to the group's prototype is essential for the construction and solidification of their identity (Hogg 1996, McCarthy, Turner, Hogg, David, and Wetherell 1992, Turner et al. 1987). Moreover, the similarity with the group's prototype determines the internal organization of the group (Hogg and Terry 2000).

Prototypicality is achieved through the process of depersonalization where individuals are viewed, treated, and behave as personifications of an exemplified model of in-group participant instead of distinct persons (Hogg, Terry, and White 1995, Hogg and Terry 2000). People understand themselves as transposable prototypes of a given social category (Turner et al. 1987) and the cognitive image of the individual becomes depersonalized and it changes from individual self to group self (Brewer and Gardner, 1996,

Hogg and Terry 2000). Thus, within the context of self-categorization theory, depersonalization should not be associated with unfavorable concepts such as "dehumanization" nor it implies the forfeiture of one's identity (Hogg, Terry, and White 1995, Hogg and Terry 2000; for an opposite argument see Tileaga 2007). Instead, depersonalization constitutes the foundation of a greater range of group occurrences such as normative conduct, stereotyping, chauvinism and collective coherence, mutual assistance and benevolence, flow of sentiment and rapport among group participants, concerted action, commonly revered values and standards, and reciprocal influence (Hogg, Terry, and White 1995, Hogg and Terry 2000).

2.1.2 Social Comparison

Categorization has a very important role in the development of social identities and the realization of their effects. The categorization of self and others into in- and out-groups increases the salience of intergroup distinctions and the relevant elements associated with each group, such as stereotypes and biased views (Hogg, Terry, and White 1995). However, Festinger (1954) argues that in the absence of fixed criteria, we feel compelled to compare our views and capacities with the ones of others. After engaging in in-group and out-group classifications, individuals attempt to assess the relative position of these groupings in the social hierarchy and determine whether their membership makes sense and suffices by contrasting it with other social categories, the people belonging to them, their qualities and advantages (Trepte 2006). Another mechanism, self-enhancement, urges individuals and groups to engage in the sort of comparisons that would deem their group as of higher standing than the out-group(s) (Hogg, Terry, and White 1995), thus accomplishing or sustaining a favorable social identity (Brown 2000, Hornsey 2008). In other words,

comparisons among groups enable individuals to reinforce or determine the superior status of their group in pursuit of self-esteem (Hogg and Terry 2000, Turner 1975). Social identity is inexorably connected to the nature of intergroup relations because of their significant evaluative component which prompts social groups to compete for favorable assessments (Hogg et al. 1995).

In order for distinctions between groups to take place effectively, social comparison necessitates (1) the absorption of group belonging in the individual consciousness and the subsequent identification with it, (2) conditions that permit social comparisons to take place, and (3) a minimum of commonalities between the in- and the out-group for the comparison to be feasible (Brown 2000, Hinkle and Brown 1990, Tajfel and Turner 1979, Trepte 2006). The more commensurable the groups are, the more intense the need for differentiation and advantageous evaluations, elements that are critical for the development of social identities and self-respect (Tajfel and Turner 1986, Trepte 2006).

2.1.3 Self-Esteem

Social comparisons are closely linked to another fundamental proposition of the social identity theory which suggests that our need for positive distinctiveness triggers the expression of in-group favoritism. Individuals not only classify themselves and others as members of various social collectivities, but they also assign a differential value to the characteristics pertaining to these groupings as they attempt to enhance their positive image and self-esteem (Tajfel and Turner 1979). Therefore, social identity inextricably ties group belonging with the value assigned to it (Trepte 2006). As a consequence, individuals who engage in favorable comparative assessments of their in-group accomplish higher levels of self-esteem; at the same time, individuals whose self-esteem has been harmed

seek positive distinctiveness to re-establish their sense of self-esteem (Abrams and Hogg 1988). Favorable comparisons result in positive social identities, while unfavorable comparisons lead to adverse social identities (Trepte 2006). The development and maintenance of positive identity become the major objective of human behavior, thus compelling individuals to engage in distinctions between groups on elements that support the perceived superiority of their own group (Trepte 2006). From that point of view, intergroup antagonism stems from the mechanisms of social comparison as people attempt to earn an advantageous image by praising the in-group or denigrating the out-group (Rabbie, Schot, and Visser 1989).

In addition, the concepts of shared fate and identity threat have also been investigated as factors driving in-group favoritism and some scholars suggest that in-group favoritism is the product of competition between groups (Brewer 1979, Flippen, Hornstein, Siegal, and Weitzman 1996, Rabbie, Schot, and Visser 1989).

Researchers within the tradition of SIT have also pointed out the urge for coherence (Tajfel 1969) and the reduction of uncertainty (Hogg and Mullin 1999, Mullin and Hogg 1998) as possible motivations for relying on stereotypes and biases. According to the latter hypothesis, apart from incentives that have to do with self-enhancement, the mechanisms of social identity are driven by a demand for decreasing personal uncertainties regarding our views, opinions, sentiments, and practices, but most importantly regarding our self-understanding and position in the social universe (Hogg and Terry 2000). According to Hogg and Terry (2000), by categorizing ourselves and others we decrease uncertainty through a shift in the way we comprehend the self and we conform to a prototype that delineates and imposes views, opinions, sentiments, and ways of conduct.

In brief, group identification provides people with incentives to discern between ingroup and outgroups in order to maintain a constructive self-image or to obtain self-enhancement (Tajfel and Turner 1979). Within this context, positive identification can be accomplished by the harmonization of incentives for individuality and collective membership (Brewer 1991). Alternatively, individuals' affiliation with a clearly demarcated collectivity diminishes feelings of uncertainty which can also generate positive identification (Hogg, Sherman, Dierselhuis, Maitner, and Moffitt 2007, Hogg, Adelman, and Blagg 2010).

2.1.4 Salience

Despite the multiplicity of group memberships for each individual, these memberships do not appear equally significant at all times (Trepte 2006). In order for social identity to motivate people to act in relevant manners, it needs to be psychologically salient (Oakes 1987, Tajfel 1979). Salience has commonly been understood as definite distinctions between groups (Trepte 2006) or the accessibility to certain social categories and their fit in rendering social encounters meaningful (Oakes 1987). The concept of fit denotes whether social memberships are an accurate description of social life and of the entailed disparities among groups (Hornsey 2008). Human cognition picks upon the apparent similarities and discrepancies and employs the most immediately accessible categories in order to make sense of the given situation (Hogg and Terry 2000, Oakes and Turner 1990). The comparative fit is evaluated by the extent that a categorization provides clear boundaries between groups and highlights the coherence of the in-group, while the alignment of one's social conduct and collective belonging with anticipated stereotypes grants the normative fit of the category to the situation (Hornsey 2008).

Meanwhile, the specific characteristics of the situation contribute significantly to which perceptions and behavioral patterns are going to emerge out of the activated identity (Hogg et al. 1995). The more integral and valuable a social identity is for individuals, the more accessible it becomes (Trepte 2006), a cognitive tool in which people habitually resort. In this sense, memberships can be readily available due to the regularity of their use as part of one's personal perception and/or because of their contextual relevance (Hogg and Terry 2000).

Several theorists within the social identity tradition have argued about the relationship between the salience of in-group and out-group belonging and the processes of depersonalization. More specifically, group salience compels individuals to think of themselves and their fellow members as indistinguishable representatives of the model member of the group (Hornsey 2008). In a related proposition, out-group salience is decisive for which prototype will emerge (Hogg et al. 1995) and when group belonging becomes salient, the relevant prototypes direct individuals' cognitive processes (Hogg and Terry 2000).

A number of studies have supported the role of group salience in the formation of social identity (Cross 1978, Hraba and Grant 1970), conformity to group stereotypes (Hogg and Turner 1985), and expression of in-group favoritism (Mullen, Brown, and Smith 1992). The processes of salience are decisive in rendering a certain group and the subsequent intergroup modes of association relevant to the way we understand ourselves in a specific situation (Hogg and Terry 2000). Group salience brings forth one's group identity as relevant for the given situation, while the blurring of collective points of reference enables personal identities to impose their interpretations of the social phenomena (Huddy 2001).

2.2 Social Identity and the Media

Social identity theory has been employed to demonstrate that our social memberships largely define the information we choose to present to ourselves and can be of value for the study of intergroup phenomena in computer-mediated interaction (Trepte 2006). In other words, the discussed theory has found applications in the study of mass media and social media. Mass media refer to printed and electronic forms of mass communication such as newspapers, radio, television, recorded music and more (Spitulnik 1993). In contrast to the one-sided production and dissemination of information related with mass media, social media can be generally defined as a "group of Internet-based applications that build on the ideological and technological foundations of the Web 2.0 and that allow the creation and exchange of user-generated content" (Kaplan and Haenlein 2010: 61).

Previous research indicated that media users are more inclined towards media products which deal with their in-group (Greenberg and Atkin 1982, Harwood 1999, Oliver 2000). According to Trepte (2006), social identity is expected to determine our media use choices because media enable individuals to present themselves in a way that promotes their identity. This capacity of the media goes beyond the well-documented instances of confirmation bias and selective exposure (Bennett and Iyengar 2008, Bimber and Davis 2003, Festinger 1957, Lazarsfeld et al. 1944) into the realm of self-presentation and impression management (Hogan 2010).

Apart from the compatibility of media and the satisfaction they can offer in terms of identities, individuals treat media as means of attaining knowledge about their social categories and their social prestige (Trepte 2006). As a result, media representation of different groups can heavily affect intergroup relations (Harwood and Roy 2005), attitudes

about the likelihood for social mobility (Elasmar, Hasegawa, and Brain 1999, Staubhaar 1991), and perceptions and stereotypes of in-groups and out-groups (Greenberg, Mastro, and Brand 2002, Morton and Duck 2000). In turn, people reiterate the norms and stereotypes they acquired from the media in their future ways of conduct (Morton and Duck 2000).

In the context of the present study, the findings discussed above suggest that individuals who are attracted into watching and, then, participating in interreligious debates in social media are more likely to do so as a function of their own social identities, particularly their (ir)religious identities which have become more salient through their exposure to the videos' titles. Moreover, the users' exposure to the actual content of the debates and the comments sections are expected to contribute to the affirmation of prototypical and stereotypical views and behaviors and would compel users to reproduce them in their own comments and their intra- and interreligious interactions.

These assumptions are further supported by a second application of SIT and SCT in the content of computer-mediated interactions, known as the social identity model of deindividuation effects (SIDE) (Postmes, Spears, and Lea 1998, Spears and Lea 1994). In contrast with the classic takes on deindividuation which suggest that collective fusion and anonymity lead to the loss of individual awareness and the loosening of normative social control (Festinger, Pepitone and Newcomb 1952, Zimbardo 1969), proponents of SIDE argue that conditions of anonymity and group visibility would promote conformity to the norms of the group one belongs (Lea and Spears 1991, Reicher, Levine, and Gordjin 1998). Accordingly, relevant studies have shown that group identification and increased social identity salience in computer-mediated environments reinforce people's tendency to follow group norms (Lea and Spears 1991, Postmes, Spears, and Lea 1998, Trepte 2006). At the

same time, the anonymity and deindividuation that characterize these sort of communications tend to intensify people's reliance to stereotypes (Lea, Spears, and de Groot 2001, Trepte 2006) reaffirm already existing intergroup boundaries, or even establish new ones (Postmes, Spears, and Lea 1998), increase in-group favoritism and outgroup hostility (Lea, Spears, and de Groot 2001, Postmes, Spears, and Lea 1998).

2.3 Religious Membership as a Social Identity

Taking into account that the content of identity assigns meaning to individual characterizations (Livingstone and Haslam 2008), religion can be a powerful source of social identity. Religions constitute social groups emphasizing individuals' otherworldly concerns and dilemmas of life and offer theoretical and practical rules (Higgins 2000, Hogg, Adelman, & Blagg 2010) determining their adherents' convictions, opinions, moral standards, and ways of conduct that have to do with the divine and mundane sphere of existence, brought together and permeated with import by a conceptual context and beliefs about life (Hogg, Adelman, & Blagg 2010, Hunsberger & Jackson 2005, Silberman 2005). Accordingly, religious individuals are considered the ones identifying with a religious tradition and following its regularizing convictions and behavioral patterns (Hogg, Adelman, & Blagg 2010). Thus, through its embeddedness in a set of guiding principles, religious membership can influence social and psychological mechanisms in a distinct manner (Ysseldyk, Matheson, and Anisman 2010).

The ability of religion to shape people's worldviews and create a sense of belonging is unique among social memberships (Kinnvall 2004, Verkuyten and Yildiz 2007, Ysseldyk, Matheson, and Anisman 2010) as it fosters strong affective bonds and provides moral authority (Wellman and Tokuno 2004). Religious identity often gains its grasp through the

unwavering conviction that the religious tradition one follows represents the truth (Kinnvall 2004, Wellman and Tokuno 2004). Despite the association of absolutistic beliefs about the truth with more conservative religious doctrines (Altemeyer and Hunsberger 2004), a certain degree of confidence to the truthfulness of specific religious dogmas is necessary for people to adhere to them (Ysseldyk, Matheson, and Anisman 2010). Most importantly, unlike other types of collective memberships, religious identities implore the transcendental to reveal the value of life and to offer normative moral principles for practical decision-making, holy ceremonies and pursuits, and everyday activities (Kimball 2002), while the extensive use of symbols validates convictions, anticipations, and objectives activating groups' religious ethos (Silberman 2004).

Religions provide an explanatory framework giving some order to the world and thus alignment with a religious tradition contributes to the decrease of uncertainty about the most strenuous conditions of life (Hogg, Adelman, & Blagg 2010). The explanatory strength of religion is more compelling as it answers to inquiries of life, definitive causativeness, and unconditional morality (Spilka, Hood, Hunsberger, & Gorsuch 2003, Spilka, Shaver, & Kirkpatrick 1985). Therefore, religious identities can function beneficially when individuals experience a sense of threat (Freeman 2003, Muldoon, Trew, Todd, Rougier, and McLaughlin 2007) by enhancing the feeling of stability and confidence in uncertain situations (Kinnvall 2004). Research in social psychology points out that religious perspectives constitute sets of beliefs held by and agreed upon a multitude of people based on common belonging (Hogg, Adelman, & Blagg 2010), while the absence of this fundamental agreement among its members challenges the perceived cohesion of the group, increases ambiguity, and promotes mutual impact and self-categorization which, in

turn, restore collective agreement, decrease uncertainty, and strengthen the identity's hold on one's life (McGarty, Turner, Oakes, & Haslam 1993).

When religious beliefs and moral values are based on significantly organized and clearly demarcated religious entities, they are able to attain great authority and importance and become unquestionable and conclusive certainties of inflexibly regulatory and static nature (Durkheim 1912, Hogg, Adelman, & Blagg 2010). Religion contributes to the distinction of morally proper from improper behavior enabling its followers to fathom intrapersonal and interpersonal issues and matters of social justice (Silberman 2005).

As Ysseldyk and her colleagues (2010) note, people who identify strongly with their religious in-group tend to have a set of common convictions and their affiliation occupies such a fundamental position to their self-understanding that it contributes to the development of individual and social self-esteem (Luhtanen and Crocker 1992) and robust affective ties with fellow members (Cameron 2004). Strong attachment to one's religion and the conviction that it carries higher conceptual and moral value in comparison to other groups is related with higher levels of ethnocentrism, thus leading to firmer adoption of the established norms and ways of conduct dictated by interreligious relations (Hunsberger and Jackson 2005). People who disagree with these religious values and outgroup members are considered malicious apostates lacking a moral foundation and, subsequently, they are viewed as subhuman beings (Haslam 2006).

Due to the similarities in their moral rules, organized religions promote peaceful coexistence and benign dealings with others (Hogg, Adelman, & Blagg 2010), but at the same time, they can be characterized by bigotry (Eisinga, Konig, and Scheepers 1995, Gall 2003, Reid 2008, Schuck 1984) and even brutality among fractions of extremists acting violently motivated by their religious interpretations (Juergensmeyer 2000). In other words,

religion as a social identity can influence significantly the nature of interreligious interactions because of its prescriptive and normative power.

Nevertheless, little is known about the way religious identities affect intra- and inter-religious interactions from the perspective of social identity theory. Scholars of SIT have generally neglected religion as a social identity in their research endeavors (for a related argument see Hogg, Adelman, & Blagg 2010, Ysseldyk, Matheson, and Anisman 2010). The present study is designed to fill in that void examining how religious identities or the lack thereof affect interreligious interactions in online settings. Specifically, following SIT, social identity in interreligious conversations can predict the expression of (1) in-group favoritism and outgroup prejudice, while, at the same time, interreligious discussions can provide insights regarding (2) the meaning of the given groups, (3) stereotyping, and (4) identity-work and identity politics processes.

2.3.1 In-Group Favoritism and Out-Group Prejudice

The association between religion and prejudice has preoccupied the scientific scholarship across time with the findings being often incompatible and in stark contrast with each other (Laythe, Finkel, Bringle, & Kirkpatrick 2002). Such observations have been summed up by Gordon W. Allport (1966: 447) who stated that "there is something about religion that makes for prejudice, and something about it that unmakes prejudice." Allport (1966) further introduced the concepts of extrinsic and intrinsic religious orientations to describe the attachment to religion as a means to an end (extrinsic) or as an end to itself (intrinsic) which are considered to make for and unmake prejudice respectively. Indeed, research suggested that intrinsically oriented individuals demonstrate consistently lower levels of prejudice in comparison to their extrinsically oriented counterparts (Altemeyer &

Hunsberger 1992, Spilka Hood, & Gorsuch 1985) making some researchers argue that the distinction between intrinsic and extrinsic religious motivations has successfully untangled the relationship between religion and prejudiced views (Spilka, Hood, & Gorsuch 1985).

Nevertheless, relevant studies have found that while extrinsic orientation has a weak positive effect to prejudice (Allport & Ross 1967), intrinsic orientations and prejudice are not associated (Donahue 1985, Fulton, Gorsuch, & Maynard 1999). Moreover, others suggest that intrinsically oriented people are not necessarily less prejudiced, but they are more concerned with social desirability (Batson, Flink, Schoenrade, Fultz, & Pych 1986, Batson, Naifeh, & Pate 1978, Batson, Schoenrade, & Pych 1985, Batson & Ventis 1982) and when the expression of biases against certain groups is socially acceptable, people with intrinsic orientations also exhibit high levels of prejudice (Griffin, Gorsuch, & Davis 1987).

More recent accounts have proposed other concepts to explain the relationship between religion and prejudice. Batson suggested that "quest," the tendency of people to seek for explanations to existential inquiries, constitutes a better predictor of tolerance and understanding towards other people (Batson et al 1985, Batson et al 1986, Batson & Ventis 1982). McFarland (1989) and Altemeyer and Hunsberger (1992) created scales measuring fundamentalism as a religious variable contributing to prejudice, while Fullerton and Hunsberger (1982) developed the Christian Orthodoxy Scale.

Despite the valuable insights these concepts have provided, they also demonstrate considerable weaknesses. Due to their conceptualization and operationalization as latent constructs, some of them such as the Quest Scale, McFarland's Fundamentalism Scale, and the CO Scale have been criticized for reliability and/or validity issues and frequently undergo revisions (Altemeyer & Hunsberger 1992, Griffin, Gorsuch, & Davis 1987, Kirkpatrick 1993). Moreover, the Christian Orthodoxy Scale cannot be used for interreligious comparisons,

whereas the two aforementioned fundamentalism scales are explicitly defined in religious terms making them practically unfit for secular and nonreligious individuals. For example, Altemeyer and Hunsberger (1992: 118) describe fundamentalism as:

> the belief that there is one set of religious teachings that clearly contains the fundamental, basic, intrinsic, essential, inerrant truth about humanity and deity; that this essential truth is fundamentally opposed by forces of evil which must be vigorously fought; that this truth must be followed today according to the fundamental, unchangeable practices of the past; and that those who believe and follow these fundamental teachings have a special relationship with the deity.

From the perspective of the present study, social identity theory is more appropriate to account for the expression of prejudice between religious groups and religious and nonreligious groups, thus affecting the nature of their interactions.

Social identities have been acknowledged as a crucial factor in the emergence of in-group favoritism and hostility among groups (Huddy 2001, Tajfel 1981, Turner et al. 1987). In-group bias is exhibited through the inclination of the people who belong to a certain group to overstress and enrich the positive attributes of the group, while out-group prejudice takes the form of overemphasizing the unfavorable features of a given out-group (Greene 2004, Tajfel 1981) in their attempt to obtain favorable self-regard and self-development (Abrams and Hogg 1988). From that point of view, positive differentiation serves to the sustenance of one's self-regard. This proposition is closely related to the self-esteem hypothesis as presented by Abrams and Hogg (1988) and its two corollaries: (1) effective intergroup discrimination results in higher self-esteem and (2) poor or jeopardized self-esteem prompts higher discrimination against the out-group.

A number of studies supported the first corollary finding that people who belong to the in-group appear to have more positive sentiments for themselves after acts of discrimination (Lemyre and Smith 1985, Oakes and Turner 1980, Rubin and Hewstone 1998).

In other words, the evaluative character of social identities provides compelling incentives to collective entities and persons alike to act in manners that will grant the comparative superiority of the group and themselves individually (Hogg, Terry, and White 1995). Therefore, individuals exhibit intergroup discrimination attempting to improve the way they feel about themselves and their in-group (Brown 2000). Nevertheless, the second corollary did not receive similar support. Although some studies have shown that strong identification with a minority group is associated with the expression of solidarity with fellow members and dislike for the out-group (Gibson and Gouws 1999, Sidanius, Feshbach, Levin, and Pratto 1997), consistent research findings show that individuals with higher levels of self-regard tend to denigrate outsiders and their groups in an attempt to preserve their place in the social hierarchy (Crocker and McGraw 1984, Long and Spears 1998, see also Mullen, Brown, and Smith 1992).

Moreover, the simultaneous expression of in-group favoritism and out-group prejudice remains inconsistent. Indeed, experimental settings, such as those in the minimal group paradigm and its variations, have effectively isolated the effect of group membership from all other possible sources of intergroup biases and have demonstrated that group membership alone is a sufficient condition for the expression of in-group favoritism (Rabbie and Horwitz 1969, Tajfel, Billig, Bundy, and Flament 1971). On the contrary, the articulation of out-group prejudice has been captured with greater difficulty. For example, in a study of social identity and political partisanship, Greene (2004) found that partisan political identity was a strong predictor of in-group favoritism, but it was not related to higher likelihood of out-group discrimination than non-partisan identification. Other studies have shown that the level of identification with the in-group is a significant factor influencing the expression of negative attitudes toward the out-group (Brown 2000, Pettigrew 1997). Such mixed

results have led Brewer and Brown (1998) to argue that these two phenomena are not necessarily taking place at the same time.

2.3.2 Group Meaning

In modern societies, religion among other social identities has become more of a matter of choice and reconstruction in comparison to previous centuries (Giddens 1991). When the significance of group belonging is challenged or the variations within a group are extensive - as they can be in cases where members of a group reside in different geographical locations or have different ethnic and cultural backgrounds - group identity can acquire multiple meanings (Cohen 1986, Huddy 2001, Jenkins 1996). Moreover, in-group and out-group members may exhibit substantial discrepancies in the way they interpret and assign meaning to the group (Cohen 1986). Therefore, a deep understanding of the meaning of collective belonging can only derive from examining the perceptions and attitudes of both sides. As Huddy (2001) notes, social identity theory proposes four points where we can trace the meaning of group belonging, namely (1) the emotional bearing of the group, (2) the major social features of the group's prototypes, (3) the main elements of the collective value system, and (4) the basic out-group features against which members of the in-group are self-described.

2.3.3 Stereotyping

Another promising area of research to which this study can contribute has to do with stereotyping. When social classifications are held by all people belonging to the group, they work as social stereotypes and enable the understanding, explication, and often validation of our conduct (Tajfel 1981). Moreover, as described in an earlier section, the process of

depersonalization in intergroup situations enhances group boundaries through the emergence of group prototypes and constitutes the cornerstone of normative conduct, stereotyping, concerted action, and reciprocal influence among others (Hogg, Terry, and White 1995, Hogg and Terry 2000).

Social identities define and communicate the characteristics of a given group and the meaning of the membership, but most importantly they provide guidelines about the type of standpoints, sentiments, and ways of conduct that suit a specific social setting (Hornsey 2008). From the moment that a certain social identity turns into a central element for normalization in a specific setting, people behave and understand themselves in compliance to the conventional patterns of the group, view other people as typical members of the group they belong, and intergroup relations become hostile and biased against other groups on the grounds of their already established exchanges (Hogg, Terry, and White 1995). In other words, social identities compel people to conform to norms and behaviors and the attribution of characteristics considered typical of the social categories they belong.

Previous research suggests that religious stereotyping is group specific. For example, prejudice against Muslims is justified through their portrayal as outsiders (Saeed 2007, Zine 2004) and treacherous to western societies (Aziz 2009, Shadid & Koningsveld 2002). Following 9/11 and similar events in Europe, assumptions of terrorist linkages and extremist acts threatening to public safety overshadow any other stereotypical characterization of the adherents of Islam (Helly 2004, King and Ahmad 2010, Mohamed and O'Brien 2011, Zine 2004). Culturally, Islam and its followers are considered to incline in violence, conflict, sexism, and repression (Helly 2004, Martin-Munoz 2010, Whittaker 2002). They are frequently associated with primitive drives (Martin-Munoz 2010, Saeed 2007) which brings them in stark contrast with the sophisticated, democratic outlook of the West (Shadid and

Koningsveld 2002, Saeed 2007) and deems Muslims as inherently unassimilable (Shadid and Koningsveld 2002).

According to Gervais (2011), although the majority of adversely stereotyped social groups have gradually improved their public outlook, atheists still maintain the last place in cultural inclusion. Tellingly, endorsement for a possible atheist candidate running for president was just 45% among Americans in 2007 and while the approval rating has increased to 58% more recently (Jones 2007, McCarthy 2015), atheists constantly occupy one of the bottom positions in the list. Stereotypical ideas about atheists suggest them to be non-conformist, dubious, and contemptuous, while they are believed to suffer from unhappiness and inability to experience awe (Caldwell-Harris et al. 2011). Moreover, Americans question whether atheists envision the same direction for the country in the long run (Edgell et al. 2006), while Australians consider them as possible hindrances to societal balance (Bain et al. 2013). Distrust is an essential part of anti-atheist bias (Gervais 2008, Gervais et al. 2011) mainly stemming from the idea that religion constitutes the bedrock of morality (Bain et al. 2013, Jacoby 2004, Thrower 1971).

Research on negative stereotyping of Christians mainly focuses on conservative denominations such as Evangelicals, Fundamentalists, or Catholics. These studies have found that Evangelicals are typically considered to be overly engaged in proselytizing (Smith and Emerson 1998), aligned with the political Right and non-accepting of other ways of life (Smith and Emerson 1998, Marsden 2015, McDermott 2009, Tuntiya 2005, Kinnaman and Lyons 2007, Yancey and Williamson 2014), while they are eager to speak out for their religious beliefs (Smith and Emerson 1998, Bolce and De Maio 1999b, Bryant 2005, Kinnaman and Lyons 2007). Moreover, the Catholic Church is often stereotyped as regressive, non-accepting, and anti-homosexual (Smith and Emerson 1998, Wallace, Wright,

and Hyde 2014, Dalessandro 2016), with the sex abuse incidents among Catholic clergy adding to the negative attitudes (Fogarty 2003, Jenkins 2001, 2003). Sometimes, there is substantial overlapping of stereotypes with Evangelicals, Catholics and other Christian believers being characterized as ingenuous, low brow, and rejectful of science (Stark 2016, Dalessandro 2016, Yancey and Williamson 2014).

Bringing together the already existing findings on stereotyping and the propositions of social identity theory, it can be argued that some of the topics emerging during interreligious conversations will directly revolve around the attribution of stereotypical characteristics of the engaged groups. As individuals will seek to improve their positive distinctiveness, it is likely to highlight the negative stereotypes of the out-group while promoting positive stereotypes of their own group. Therefore, it can be predicted that topics involving stereotypical representations of the groups will lead to topic-sentiment polarization.

An important proposition of social identity theory and self-categorization theory argues that stereotypes are rather context-specific and, therefore, more susceptible to change than typically considered (McGarty 1999, Oakes, Haslam, and Turner 1994). Nevertheless, the rigidity of experimental designs and the confinement of measurements at one point in time in survey research are seldom able to capture the fluidity of stereotyping. The present research design can provide a more comprehensive account of the content of stereotypes – both negative and positive – related with the three (ir)religious groups under examination and can trace possible changes across time. Most importantly, if social identity heory holds true, stereotypes are not only context-specific, but they are also constructed as a reflection of intergroup dynamics. In this case, the stereotypical representations of our

reference group – Christians – is expected to vary depending on the other group that engages in the debate (atheists or Muslims).[2]

2.3.4 Identity Politics and Identity-Work

Identity work is described as a variety of activities that people undertake in order to construct, convey, and perpetuate identities consistent with and affirming of their self-concept (Snow and Anderson 1987). In the context of social identity theory, researchers have observed different types of identity-work when people and groups attempt to maintain or achieve positive distinctiveness.

Individuals who belong to groups placed higher in the social hierarchy are more likely to embrace their social identity as clear markers of their superiority against members of the out-group (Tajfel and Turner 1979). Members of socially challenged groups, however, might struggle more with their identity as they can either (1) activate their social creativity and reconstruct their social identity based on favorable characteristics that the group possesses, while downplaying perceived valued ones (Mummendey and Schreiber 1984, van Knippenberg and van Oers 1984, Jackson et al. 1996, Hornsey 2008), (2) pursue the alteration of public representations of their group in order to improve their social standing (Tajfel and Turner 1979), (3) negate their group belonging and attempt to move up the social ladder by adopting the characteristics of another group (Jackson, Sullivan, Harnish, and Hodge 1996, Tajfel and Turner 1979, Wright, Taylor, and Moghaddam 1990), or (4) even actively challenge the outgroup and engage in intergroup conflict (Seul 1999, Tajfel and Turner 1986). Although the latter strategy does not necessarily result from differential

[2] For example, I would expect higher likelihood of occurrence of (positive) stereotypes presenting Christians as civilized and adhering to democratic values in debates with Muslims than atheists.

treatment between in-group and out-group members, it is more likely to be employed when the group's pathway to positive evaluations is blocked by an out-group (Tajfel and Turner 1986). In this case, aggression and negativity among groups may arise without the involvement of other conflicting group interests (Seul 1999).

Identity-work has also been associated with the development and pursuit of identity politics. Identity politics refer to the sociopolitical pursuits and mobilization aiming to safeguard recognition of status-based groups (Fraser and Honneth 2003, Bernstein 2005). By engaging in this sort of mobilization, the components of a group identity become more solid and clear (Smith 2013). Although social movements related to the rights of females, religious minorities, people of color and various ethnic backgrounds, and the LGBT community increasingly make claims for deserving deference and acknowledgment (Taylor 1994), scholars have neglected the role of social identity in their accounts on identity politics (Huddy 2001). This gap seems all the more important to be filled due to an identified shift from the political pursuit of financial parity to "cultural politics" attempting to reveal how interpersonal disparities are subjectively constructed, outwardly instituted, and culturally reflected via a procedure of identity construction carrying political connotations (Soja 2000, DeLeon and Naff 2004).

Religious fundamentalism has currently risen as a robust and consequential foundation of identity and has incentivized religious adherents to engage in civil battles opposing social movements and programs against the conventional systems of governance (Castells 1997, Guth and Green 1986, Leege 2003, Putnam 2001). Moreover, the controversy about the position of religion in public life is considered as a crucial topic for the current century (Kettell 2009). Within this context, while Christianity may be the dominant religious force in western countries, its influence in the social sphere has diminished

considerably (Berger 1967). As a result, Christianity attempts to secure its position as the main authority on morality and eschew the demands of proof and testimonials that characterize social affairs, leading to cleavages with secular worldviews (Kettell 2009).

Previous accounts argue that religion growingly becomes an indicator of identity among adherents of Islam residing in western countries during the past three decades (Choudhury 2007, Hutnik 1985, Saeed, Blain, and Forbes 1999) often displacing the importance of ethnic minority identification (Ballard 1991). As the argument goes, Muslim political organization can be the result of conditions inherent to Islam that promote claims for civic space or a counter-movement to unfair treatment and social and financial dispossession (Statham 2003), augmented in-group cohesion due to societal depreciation and derision (Saeed, Blain, and Forbes 1999, Samad 1996).

Atheists probably constitute the most promising group for the study of identity work and identity politics in social media. Despite the difficulty to consider atheists a homogeneous, overt, or coherent group (Cimino and Smith 2011, 2014, Dawkins 2006), arguments have been made about the recent emergence of a noticeable atheist community and collective identity (Cimino and Smith 2011, 2014, Smith 2013). New Atheism gained momentum as a movement through the books of Richard Dawkins (2006), Sam Harris (2004), Christopher Hitchens (2007), and Daniel Dennett (2006) by asserting the inherent conflictual relation between religion and science and the deleterious role of religion in societies (Fumerton 2013). Even though the militancy of their positions is not always well-received among unbelievers (Catto and Eccles 2013, Kitcher 2011, McGrath 2013), the New Atheists' publications have provided the material for the development and articulation of common narratives, an important element for the sense of collective solidarity (Cimino and Smith 2011) and constitute points of reference among de-converts (Catto and Eccles 2013,

LeDrew 2013, Williamson and Yancey 2013), and atheist associations (Cimino and Smith 2014).

Social media also seem to obtain an ever-increasing centrality in the feeling of community and belonging among atheists and can constitute spaces of significant identity work. The media, in general, have enabled the popularization of New Atheism by making their rhetoric arguments available to broader non-religious audiences (Cimino and Smith 2011, Hannabuss 2015). At the same time, social media made possible the contact among physically isolated atheists, while providing platforms for uttering one's thoughts and feelings (Cimino and Smith 2014) and exchanging views with other unbelievers (Zuckerman 2011).

2.4 Hypotheses

The present study aspires to shed light on some aspects of interreligious interactions as they are proposed by social identity theory. I argue that social membership in a religious or nonreligious group – operationalized as (self) identification as a Christian, Muslim, or atheist – constitutes sufficient condition for the articulation of positive in-group and negative out-group bias when the in-group and the out-group become salient.

In addition, the data which come from naturally primed[3] online commentaries by YouTube users provide fertile ground for the examination of real-world interactions among groups. While one cannot deny some social desirability effects since the conversations take place in a clearly public space, the image management does not target the researcher nor is produced due to typical threats of internal validity in experimental settings such as testing

[3] Meaning not initiated by a researcher.

or design contamination. Therefore, these data offer a better chance to capture both in-group and out-group bias as they naturally occur in intergroup communications. This assertion is further strengthened by the conditions of impersonality and relative anonymity characterizing social media like YouTube and the presence of multiple likeminded – or better stated similarly identified – people which can encourage the normalizing effect of their social identity.

Interreligious interactions in online settings can be revealing regarding the content of each identity examined in the present research. Most importantly, topic-sentiment analysis as a method of analysis can reveal the identity-specific topics that induce positive in-group bias and negative out-group bias in the form of sentiment polarization between the debating groups. In other words, which topics constitute points of departure for the (ir)religious groups in question leading to tensions and for which topics the debate takes place in more positive terms? In this sense, although social identity theory predicts polarization, it is not only expected that the people engaging in these interactions will irremediably use their (ir)religious identities to take distance from the members of the other group. Instead, the current research design allows me to examine any common ground the users may set, possibly drawing from other shared social identities.

To summarize, taking into account the propositions of social identity theory which suggests that social identity is related with positive in-group and negative outgroup bias and the existing literature regarding the identities of Christians and Muslims, and the only nascent atheist identity, I hypothesize:

H_1: In the context of interreligious debates, topics will tend to reflect the (ir)religious identities of the users.

H_2: In the context of interreligious debates, individuals will be more likely to discuss topics associated with their own (ir)religious identity (in-group favoritism).

H_{3a}: In the context of interreligious debates, individuals will be more likely to use positive language when they discuss topics associated with their own (ir)religious identity (positive in-group bias).

H_{3b}: In the context of interreligious debates, individuals will be more likely to use negative language when they discuss topics associated with the (ir)religious identity of the other group (negative out-group bias).

H_4: In the context of interreligious debates, atheists will tend to exhibit fewer instances of in-group and out-group bias than Christians.

H_5: In the context of interreligious debates, Christians will tend to exhibit comparable instances of positive in-group bias and negative out-group bias as Muslims.

CHAPTER 3

METHODS

3.1 Data

The data employed in the present study constitute comments made in YouTube videos presenting interreligious debates. Two types of interreligious debates were selected: Christian vs. atheist and Christian vs. Muslim.

The sampling technique used for the data collection is best described as purposive sampling and took into account three criteria: (a) explicit debate between Christian and atheist / Christian and Muslim, (b) a minimum number of views (>20,000), and (c) a minimum number of comments (>400).

The selection process started with a YouTube search where I identified videos explicitly stating the groups engaged in the debate in their title line. The overt reference of the two debating groups in the videos' titles constitutes a form of natural priming, meaning an unconscious stimulus directing memory and perception (Tulving and Schacter 1990) which, in turn, increases the identity salience among the commenters. This way, even those commenters who did not watch the debate are minimally triggered to think in terms of the featured social identities which are contextualized in opposition to each other.

The identified videos' URL addresses and other information, such as the date uploaded on YouTube, number of views, number of comments, likes, shares, etc., were entered in an excel file serving as an audit trail of the procedure. Subsequently, each video was examined to verify the relevance of its content. Videos featuring debaters from other faiths in addition to the ones of interest, consisting of excerpts of larger debates unequally representing the groups of interest, or featuring responses to other YouTube users who were not present in the setting, were excluded from the next steps of the selection process.

Once accumulated in the excel sheets, the videos were shorted in descending order by the number of views. The number of views is useful because they provide a relative way to estimate a video's appeal among the public and can increase one's confidence that the video was not merely seen and, subsequently, commented by users somehow personally connected to the user who uploaded the video. In other words, a large number of views would increase the chances of users having viewed and commented the video as a function of their social identities instead of personal affiliations and identities or other idiographic reasons. Furthermore, an extended commentary section would be more likely to foster the feeling of anonymity and deindividuation among users, conditions considered crucial for the operation of social identities in online environments, according to the social identity model of de-individuation (Lea, Spears, and de Groot 2001, Postmes, Spears, and Lea 1998, Trepte 2006).

A cut-off point of minimum 20,000 views and minimum 400 comments was employed for the final inclusion of videos into the dataset. These figures constitute a rather arbitrary measure which appears to be a good compromise between the desired large number of views and commentaries while allowing a satisfactory number of videos to be selected for the study. Ultimately, 21 videos of Christian – atheist debates and 20 videos of Christian – Muslim debates met all three criteria and were included in the dataset.

After the determination of the videos that would be used in the study, *YouTube Comment Scraper* was employed to extract and download the comments from each YouTube video. *YouTube Comment Scraper* is a free, online scraping tool that was preferred because it is easy to use without requiring programming skills, and most importantly, it returns all posted comments in a YouTube video along with the ensuing information:

Comment ID, Username, Date, Timestamp, Number of Likes, Comment Text, and Replies. The data can be stored in a JSON or CSV format.

The data collection took place in late January – early February of 2016. *YouTube Comment Scraper* returned a total of 243,468 comments from the 21 videos of Christian vs. atheist debates and a total of 84,784 comments from the 20 videos of Christian vs. Muslim debates.

3.2 Research Design

The present study constitutes a quasi-experimental research design or otherwise known as a natural experiment. In this case, the stimulus takes the form of an explicit distinction between the ingroup and the outgroup – us vs. them – in the context of interreligious debates as expressed in the videos' titles and their content.

Through natural priming, YouTube users are unconsciously encouraged to develop and articulate their attitudes drawing upon their existing (ir)religious identities which have become more salient through their exposure to the stimulus (see also Scheufele and Tewksbury 2007, Tversky and Kahneman 1973 for a relevant discussion on the role of priming in media effects and communication). At the same time, the framing of the debate towards a specific outgroup guides YouTube users to perceive the situation and articulate their arguments in comparative terms and in direct relation to the opposing group (see Kahneman and Tversky 1979, Scheufele and Tewksbury 2007 for the media effects of framing). These characteristics of the research design foster the salience of the users' social identities and strengthen the conditions for the expression of out-group prejudice and in-group favoritism.

Similarly, as the social identity model of de-individuation effects (Lea, Spears, and de Groot 2001, Postmes, Spears, and Lea 1998, Trepte 2006) has proposed, computer-mediated communications offer additional strategic conditions, such as anonymity and deindividuation, for the normalizing effects of social identity to take place. The use of naturally primed, large YouTube commentaries further meet the criteria of group visibility (Reicher, Levine, and Gordijn 1998) and group size effects (Bond 2005, Thomas and Fink 1963) which are found to be influential in conformity to group norms. The standardization of the selection criteria for the two sets of debate videos attempts to keep the aforementioned elements, as well as possible demographic elements as constant as possible, thus reducing the attribution of any polarization effects to the specific content of the examined social identities.

Although the commentary section of the selected videos has allured a large number of YouTube users from a variety of faiths and stances towards God or the supernatural, this research project focuses on three distinct identities: Christian, Muslim, and atheist. These three identities are the ones primed in the videos' titles and their content representing debates between Christians and atheists or Christians and Muslims. In this context, Christian identity serves as a reference group that helps assess whether and how different outgroups may elicit different topics and different emotional reactions. Furthermore, the Christian identity is contrasted with another religious identity (Muslim) and an irreligious identity (atheist). Such comparisons can indicate how religious and non-religious identities function and can showcase how identity boundaries and identity work take place through the topics discussed and the sentiment attached to them in each case. Moreover, by comparing how long-established religious identities and the recently emerged atheist identity operate, the

discussed research project can explore the degree of normalization informing the users' reactions.

By utilizing the format of a natural experiment, the study remains true to the origins of social identity theory highlighting the importance of experimental manipulations to accurately determine causal relations between (ir)religious identity and topic-sentiment polarization in intergroup communications. Meanwhile, it contributes to the understanding of social identity processes in the social context of the real-world human interaction. To the best of my knowledge, there are no previous quasi-experimental studies examining real-world interreligious communications of this sort based on the propositions of social identity theory. Similarly, the present research is the first to test the ability of topic-sentiment analysis as a method that can be systematically used to study the effects of social identity.

3.2.1 Coding and Cleaning

The data were processed as two separate files representing each type of debate. A unique comment ID was assigned to each comment and a video ID was assigned to all comments associated with each of the selected videos. Then, the data were sorted based on the users' usernames. Although YouTube does not have a policy enforcing the generation of a unique username for each person who signs up, the user's username was considered a good starting point for the organization of the comments in a way that would enable the identification of the user's (ir)religious identity. The widespread utilization of alphanumeric usernames and uncommon aliases provides a fair estimate of uniqueness. In the occasions where the username constituted a regular name or name and surname, additional criteria, such as (a) corresponding video ID, (b) chronological association of the comments' posting, (c) co-appearance in the same exchange of comments with similar users, and/or (d)

consistency in the content and the articulated arguments, were employed to assess whether all or a number of the comments can be attributed to a single user. When these criteria failed to exclude the possibility of more than one users having appropriated the same username (e.g. when one username appeared to have commented on multiple videos, in different periods of time, and the comments did not assert with certainty the same identity), the relevant comments were excluded altogether as undefined or were coded conservatively with respect to their association with a single video ID, a single exchange among users, or their chronological proximity.

After the initial organization of the data based on the users' usernames, the coding process proceeded with the identification of key statements that would indicate the (ir)religious identity of the user in the most definite manner possible. In other words, since social identity theory supports the nexus of in-group favoritism and outgroup discrimination, it was essential to limit any reliance on inferences about one's identity based on the "team" they support or oppose in order to avoid findings produced by circular logic in the handling of the data. Therefore, the comments were basically coded based on two types of statements: (a) self-identification statements and (b) statements asserting belief in the Christian or Islamic God or disbelief in any kind of deity. For example, self-identification statements include "I am a Christian / atheist / Muslim" and its variants, "as a Christian / atheist / Muslim", "we Christians / atheists / Muslims", "us Christians / atheists / Muslims", etc. Some instances of statements asserting belief or disbelief are "Jesus is my Lord", "God doesn't exist", "Islam is truth" and more.

Comments which included self-identification or belief/disbelief statements, as the ones described above, were initially located by using the excel Find feature. Subsequently, they were examined to verify that the terms were indeed used to indicate the user's identity

and they were not part of quotes from other users or the product of sarcasm and trolling. Several other comments pertaining to the same usernames were also read to assess the consistency and validity of the author's identification before the final assignment of codes.

Once the (ir)religious identity of the users was determined, the coded comments were saved in a separate excel file where they were further cleaned by removing special characters, usernames mentioned within the comments, and text written in languages other than English to the level possible. The final version of the datasets included 52,612 comments for the Christian vs. atheist debate, approximately 21.6% of the total comments extracted from the relevant videos, and 24,179 comments for the Christian vs. Muslim debate, approximately 28.5% of the total comments downloaded for this set of videos.

3.2.2 Interrater Reliability

In order to evaluate the appropriateness and consistency of the coding, it was necessary to conduct interrater reliability checks. Smaller subsets of comments were selected using stratified sampling in an attempt to take into account the wide variation in the number of comments posted by individual users.[4] Since the coding process heavily relied on identifying the user's (ir)religious identity, it was only possible to be assessed by including all relevant comments made by each select user. Therefore, the comments were initially tallied by username using the excel *countif* function and users were sorted into five different strata based on the number of comments they contributed to datasets. The purpose of these groupings was to ensure that users with different levels of engagement in the commentaries would be included in the reliability checks. Then, with the help of an

[4] Simple random sampling was initially used as the preferred method but it resulted in an oversampling of users with large numbers of comments posted.

online random number generator, 63 usernames from each dataset were selected for the sample, corresponding to a total of 6,456 comments for the Christian – atheist debate (approx. 12.3% of the dataset) and a total of 4,109 comments for the Christian – Muslim debate (approx. 17% of the dataset).

Due to the relatively large number of comments selected, it was considered best to be distributed into six[5] smaller subsets consisted of the comments by 21 users each in order to spread the burden of reliability checks among six different coders. I contacted the potential coders personally and requested their help for this part of the project. After their consent to serve as coders, individual subsets and instructions on the coding were sent via e-mail. Users' usernames had been removed and substituted with a unique identifying alias (e.g. user1, user2, and so forth) to protect the privacy of the users.

The datasets were distributed to the coders in mid-November 2017 and were returned in various dates concluding in mid-February 2018. For the Christian – atheist debate, there was a mismatching of the coding for 213 out of the 6,456 comments distributed to the coders (approx. 0.03%). However, because these comments were associated with 12 separate usernames out of the 63 initially sampled, it was deemed important to establish whether the mismatches occurred due to problematic codes, miscommunication, or by accident. Therefore, the mismatched comments were redistributed to the coders with a reminder of the initial instructions. Each of the coders received the mismatched comments of the other coders and not their own mismatches. The final coding was returned early March 2018. Out of the 213 originally mismatched comments, only 5 (produced by 2 separate usernames) failed to reach an agreement and,

[5] Three subsets for each type of debate.

subsequently, were excluded from the analysis. Therefore, a total of 52,607 comments were used for the Christian – atheist debate.

In contrast, for the Christian – Muslim debate, all three sets of coding perfectly matched my initial coding. It seems that Christians and Muslims' in the context of these YouTube commentaries are more affirmative of their identities and, therefore, there is less ambiguity.

3.3 Analytic Strategy

3.3.1 Topic Models

Topic modeling is a text analysis method enabling "an automated procedure for coding the content of a corpus of texts (including very large corpora) into a set of substantively meaningful coding categories called "topics" (Mohr and Bogdanov 2013: 546). The method resembles content analysis, but instead of relying on human coders for the development of codes and the process of coding, it employs algorithms and computer software to identify the topics (Mohr and Bogdanov 2013). Therefore, it is described as more inductive in nature than the conventional text analysis techniques (DiMaggio, Nag, & Blei 2013, Mohr and Bogdanov 2013).

The researcher determines how many topics should be extracted, while the relevant software produces the topics by assessing their distribution within the dataset with the use of probabilistic models or linear algebra (Mohr and Bogdanov 2013, Papadouka, Evangelopoulos, and Ignatow, 2016). The theoretical premises of the method are founded upon Saussurean linguistics implying that meaning is made of the relations among words within a text (Saussure 1959). Similarly, topics are composed of a specific collection of

words and, therefore, when a topic exists, these words are more likely to appear in the document (Mohr and Bogdanov 2013, Papadouka, Evangelopoulos, and Ignatow, 2016).

Although a number of algorithms have been developed for the purposes of topic extraction, including Latent Dirichlet Allocation (LDA) (Blei, Ng, and Jordan 2003, Mohr and Bogdanov 2013), Latent Semantic Indexing (LSI) (Deerwester et. al. 1990), and probabilistic Latent Semantic Indexing (pLSI) (Hoffman 1999) to name a few, Latent Semantic Analysis (LSA) has gained better reputation for social sciences' studies (Ignatow, Evangelopoulos, Zougris 2015). Latent semantic analysis (LSA) constitutes a theory of meaning and a method of topic extraction through the algorithmic examination of structures of linguistic terms (Evangelopoulos 2013). As a theory of meaning, LSA is founded upon sociolinguistic approaches which suggest that meaning is established intersubjectively as a product of human interaction (Landauer 2007, Evangelopoulos 2013). As a method, it consists of a computerized statistical process for the determination of associations of presumed contiguities of terms in excerpts of discourse and can be described as factor analysis appropriate for textual data (Landauer, Foltz, and Laham 1998).

In technical terms, latent semantic analysis is an algorithm founded upon truncated singular value decomposition which alters term frequencies in order to sort the most significant terms and uncover the latent dimensions in a corpus of documents (Papadouka, Evangelopoulos, and Ignatow, 2016). With the use of linear algebra, LSA initially produces a vector space model (VSM) in the form of a frequency matrix of terms by documents. In this semantic space, terms constitute dimensions and documents constitute vectors. The original dimensions are deduced into a more parsimonious set by filtering out terms that provide inconsequential information for the examined subject such as pronouns, prepositions, conjunctions, and the like. Meanwhile, terms with a shared root and/or

comparable meaning are further consolidated with the use of a synonym list specially made to accommodate the linguistic variation in a particular project. The numerical representation of the documents in the form of a matrix takes place through the weighting of words that have a higher occurrence in smaller batches of documents against words that have higher occurrence across the entire set of documents. Ultimately, meaningful terms which frequently coexist in the same 'bag of words" are determined to represent important factors within the semantic space (Evangelopoulos 2013, Evangelopoulos, Zhang, & Prybutok 2012, Landauer, Foltz, and Laham 1998, Wiemer-Hastings, Wiemer-Hastings, and Graesser 2004).

The existence of significant limitations, such as the lack of accounting for word order and syntactic or morphological elements affecting our understanding of the linguistic material, does not seem to compromise the ability of LSA to extract meaning in manners comparable to the human cognitive capacity (Landauer, Foltz, and Laham 1998). Thus, it not only enables researchers to examine large textual corpora that would be difficult to handle otherwise but can also reduce the infiltration of researchers' biases, a subject of concern commonly tainting the assessment of validity in qualitative research (Mohr and Bogdanov 2013).

For the present study, latent semantic analysis (LSA) was performed with the use of SAS Enterprise Text Miner 14.3. More specifically, log-entropy was chosen as the preferred weighting method where the log of the word's rate of occurrence in a single document constitutes the local weighting, while the global weighting is associated with the entropy of the word's rate of occurrence across the text corpora (Chisholm and Kolda 1999). This way, the word frequencies are transformed based on a value indicating the significance of the term within the individual document and the overall knowledge earned by using the term to

predict the documents it occurs (Landauer, Foltz, and Laham 1998, Wiemer-Hastings, Wiemer-Hastings, and Graesser 2004).

3.3.2 Sentiment Analysis

In an attempt to capture emotional aspects of in-group favoritism and out-group prejudice as well as the evaluative significance of certain elements of (ir)religious identities that may otherwise be lost, sentiment analysis was also chosen as an analytic strategy for the study. Moreover, recent media-related studies have showcased the importance of accounting for the emotional components of text (Bail 2012, Eshbaugh-Soha 2010, Ignatow, Evangelopoulos, and Zougris 2015, Liu and Zhang 2012) further reinforcing the necessity of sentiment analysis in this study.

Sentiment analysis is a computerized technique used to examine viewpoints, evaluations, attitudes, and sentiments related to a variety of objects, subjects, and matters (Liu and Zhang 2012). Alternatively, it has been described as opinion mining (Liu and Zhang 2012, Pang and Lee 2008), analysis of stance (Conrad and Biber 2000), point of view (Scheibman 2002) or even semantic orientation (Osgood, Suci, and Tannenbaum 1957, Taboada et al. 2011) among others. As it is argued in the case of topic extraction, systematized methods for sentiment extraction are essential in order to avoid the biases commonly associated with information processing (Jonas et al. 2001, Liu and Zhang 2012, Nickerson 1999).

Automatic methods of sentiment analysis have followed two paths for the evaluation of emotional components in the text. In the first place, text classification techniques based on supervised grouping are used to develop categorization codes from examples of relevant documents (Pang, Lee, and Vaithyanathan 2002, Taboada et al. 2011).

In the second place, researchers often develop lexicons of negative, positive, and or neutral words in order to estimate the emotional orientation of textual data (Taboada et al. 2011, Turney 2002, Wilson, Wiebe, and Hoffmann 2005). Although text classification approaches have been very successful in determining document polarity (see Chaovalit and Zhou 2005, Bartlett and Albright 2008), their effectiveness is significantly diminished if they are employed to classify sentiment in a field other than the one they were designed to serve (Taboada et al. 2011).

The discussed research activity follows a lexicon-based approach to sentiment analysis where I utilize two already existing dictionaries of negative and positive terms (Liu, Hu, & Cheng 2005). The sentiment analysis was performed using R Studio.

3.3.3 Topic-Sentiment Analysis

Topic sentiment analysis (TSA) is a text analytics research technique designed to calculate the polarity of emotions across topics that occur in sizable sets of textual data (Ignatow, Evangelopoulos, and Zougris 2016, Lin and He 2009). The method has been proposed in some variations, including the topic sentiment mixture (TSM) model (Mei, Ling, Wondra, Su, and Zhai 2007), the joint sentiment topic (JST) model (Lin and He 2009), and the multi-aspect sentiment analysis with topic models (Lu, Ott, Cardie, and Tsou 2011).

Predominantly employed for business analytic purposes and marketing-oriented research, the aforementioned approaches to topic-sentiment analysis aim to discovery or insight generation and aspire to extract the finest level of information possible (e.g. product aspects satisfaction) that can be used for product development and customer service among others. However, in theory-driven research, such fine levels of granularity are not more meaningful than more comprehensive topic extraction.

For the purposes of the current study, I follow the TSA model proposed by Ignatow, Evangelopoulos, and Zougris (2016) which makes use of latent semantic analysis (LSA) for the topic extraction and is better suited for social science studies. The model follows a multi-stage process starting with topic extraction through the principles of LSA. Sentiment analysis is performed separately. Then, the results of LSA and sentiment analysis are aggregated in the same dataset. Each comment has been assigned a numerical value for each of the extracted topics (1 if the topic is present in the comment, 0 if it is not) and an overall sentiment score based on the number of positive and negative words appearing in it. Subsequently, the raw sentiment scores are recoded into sentiment categories such as positive, negative, and neutral.

The end product of topic-sentiment analysis constitutes a correspondence analysis map. Correspondence analysis enables the graphical representation of the relationship between nominal variables on a parameter space of limited dimensionality (Greenacre and Blasius 1994). The analysis is based on a contingency table where the topics are found in the rows and the sentiment categories in the columns of the table. The chi-square statistic is, then, calculated to assess whether topics (rows) and sentiment categories (columns) are independent. In order to be independent, the chi-square statistic should resemble a chi-square distribution with (r-1)(c-1) degrees of freedom (Ignatow, Evangelopoulos, and Zougris 2016, Yelland 2010) where r represents the number of (ir)religious groups and c represents the number of sentiment categories. Finally, the dimensionality of the plot is identified based on the inertia explained by each of the components (Yelland 2010).

The multi-stage process of topic-sentiment analysis was conducted separately for the cases of Christian – atheist, and Christian – Muslim debates. The results are presented in the following chapters.

CHAPTER 4

RESULTS

4.1 Case Study 1: Christian vs. Atheist Debates

4.1.1 Overview

The first type of debates that were selected for the study featured Christian and atheist debaters. The specific groups were chosen as the focal point for various reasons. Apart from a strong research interest in them on my behalf, Christians and atheists represent majority-minority dynamics. The majority of the global population holds some sort of religious views (Norris and Inglehart 2011), while atheists per se constitute a mere 11% of the people (WIN/Gallup International 2015). Regional variations do exist and occasionally they reverse the pattern (see China), but religion or, at least, faith in a higher power remains the cultural norm.

Most importantly, Christians and atheists represent different forms of identity and hold diametrically antithetical views about the existence of God. Following the previous discussion on religion as a social identity, religious groups, such as Christians and Muslims are characterized by a distinct sense of belonging and cohesive worldviews (Kinnvall 2004, Verkuyten and Yildiz 2007, Ysseldyk, Matheson, and Anisman 2010) regularized and legitimized through the normative authority of a divine power (Hogg, Adelman, & Blagg 2010, Hunsberger & Jackson 2005, Kimball 2002, Silberman 2005). In other words, the Christian identity is founded upon an explicit, coherent, and longstanding membership and substantive religious views which guide people's personal, interpersonal, and social interpretations. In contrast, atheists constitute a rather covert, loose social category (Dawkins 2006) which only recently is considered as a community on the making (Catto and Eccles 2013, Cimino and Smith 2011, Smith 2013).

From that point of view, the quite distinct level of coherence in membership between the two groups can reveal differences in the identity processes and expressions during intergroup communications. At the same time, the interactions between a religious and an irreligious group can be contrasted to the interactions between religious groups (Christians – Muslims) in the next case study. In a sense, this comparison will allow separating the effect of membership from the effect of religion.

Despite the newfound sense of community, atheists do not lack consistent elements of identity. In place of faith, atheists counter value reason, science, and empiricism (Caldwell-Harris et al. 2011, Hunsberger and Altemeyer 2006, LeDrew 2013, Williamson and Yancey 2013, Zuckerman 2011). Moreover, atheistic worldviews often emerge or function as a reaction to far-right/fundamentalist Christians (Catto and Eccles 2013, Cimino and Smith 2014, LeDrew 2013, Williamson and Yancey 2013), a fact that further justifies the selection of Christian and atheist debates. Antipathy towards other religions, such as Islam, has also been expressed (Emilsen 2012) since atheists seem to oppose the general pervasiveness of religious interference in social and private matters (Williamson and Yancey 2013). Finally, Hunsberger and Altemeyer (2006) report that atheists exhibit similar patterns of in-group favoritism and out-group prejudice as their religious counterparts do.

Taking all the above into account, it is reasonable to believe that (a) the content of Christian and atheist debates will mainly discuss key identity elements of the two groups (e.g. faith vs. reason), (b) the topics will reflect the processes of in-group favoritism and outgroup prejudice in the form of core beliefs held by each group and/or positive and negative stereotypes for each of them, and (c) the (ir)religious identities of the two groups will trigger considerable topic-sentiment polarization.

4.1.2 Descriptive Statistics

A total of 52,607 comments were entered in the analysis for the Christian – atheist debate posted by 2,834 unique usernames. Appendix A shows, the number of comments per username range between 1 and 1820 with an average of 18.56 and a median of 3, indicating that the distribution of comments among users is positively skewed. Nevertheless, the number of comments by social identity are almost evenly distributed with 26,670 comments made by Christian users (50.7%) and 25,937 comments posted by atheist users (49.3%).

In order to account for the considerable variation in comments by usernames, topic extraction was repeated without the comments by usernames[6] which contributed more than 1,000 comments in the discussion. The results, which are presented in Appendix B, indicate that despite their extreme numbers, these prolific users do not inform the content of any of the topics in a substantial way.

4.1.3 Topic Models

SAS Enterprise Miner 14.3 was used for the extraction of topics from the available set of comments pertaining to Christian – atheist debates. In order to facilitate the topic extraction, I created a dictionary consisting of 237 synonym terms out of the ones commonly employed by the users in their comments in both datasets. An illustration of the dictionary can be found in Appendix C.

Before the extraction of topics, it was essential to determine the number of topics that would most accurately reflect the overall topic variation across comments through the

[6] 3 usernames were associated with more than 1,000 comments in total.

examination of the relevant eigenvalues. Figure 4.1 shows the distribution of eigenvalues for this set of debates. It appears that, apart from the prevalence of the first dimension, there are several elbow points that could be used as cut-offs for the topic selection such as k=4, k=7, or k=10. The lack of an obvious, uncontestable solution necessitated the examination of the scree plot through a change-point detection test based on log-likelihood ratio estimation (Zhu and Ghodsi 2006). This test can further assist to determine the optimal number of dimensions in textual data. The results of the test suggested the extraction of 10 topics (see Appendix D).

Figure 4.1: Eigenvalues for Topic Dimensionality Detection

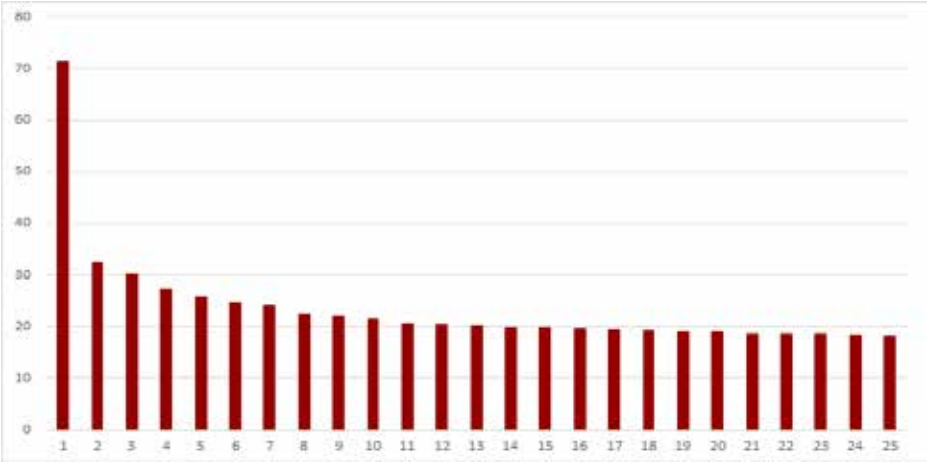


Table 4.1 shows the 10 topics that were extracted along with the designated labels, their descriptive terms, and the number of documents in which each topic appears. In most of the cases, the labels of the topics were assigned based on straightforward criteria such as the high-loading descriptive terms. In some rare cases (e.g. for T03 *Identity Statement*), the labels were assigned by a more in-depth examination of several comments associated with the respective topics and, therefore, following a more interpretive approach[7].

[7] Table E.1 in Appendix E illustrates a sample of comments with high loadings for T03 Identity Statement.

Table 4.1: *Emergent Topics*

Topic	Label	Descriptive Terms	#Docs
T01	Burden of Proof	+evidence, +exist, +claim, +god, +true	7683
T02	Jesus the Savior	+jesus, +sin, +love , +life, +god	5325
T03	Identity Statement	+christian, +atheist, +stupid, +religion, +claim	7508
T04	Scientific Theories	+science, +evolution, +theory, +universe, +big	6002
T05	Morality	+morality, +wrong, +objective, +kill, +subjective	3942
T06	Belief	+belief, +atheism, +god, +religion, +atheist	8242
T07	Cross Examination	+answer, +question, +comment, +reason, +point	4814
T08	Bible	+bible, +read, +book, +write, +word	6713
T09	Creation	+god, +exist, +know, +create, +universe	7729
T10	Truth Claims	+true, +know, +want, +lie, +talk	7355

So, what are these Christian and atheist users talk about? And to what extent these topics are consistent with their (ir)religious identities as H_1 would predict? An initial examination of the topics suggests that several of them seek to address two interrelated sets of questions. In the first place, Christian and atheist users are preoccupied with the ontological question. T01 *Burden of Proof* is associated with 7,683 comments and is the second most frequently emerging topic of all. In this topic, the users debate the existence of God and who bears the burden of proof: the one who believes or disbelieves? Similarly, T02 *Jesus the Savior*, which is found in 5,325 comments, discusses the nature of Jesus as a central figure in Christianity and, by extension, the nature of God and of the Christian faith itself. To the degree to which ontological concerns attempt to approach the questions of *what is*, the essence of abstract objects and subjects, T06 *Belief* also taps into ontology (8,242 comments). This topic constitutes the most popular subject of discussion where

atheist and Christian users explain the nature of their belief, while at the same time they negotiate the definition of atheism as a religion. The latter argument is supported by Christian users who suggest that atheism is no different than Christianity since it is also founded on atheists' belief that God does not exist.

Along with the ontological question, atheist and Christian users engage in epistemological arguments geared towards explaining how they know what they know and which method of knowing is more reliable. T09 *Creation* (7,729 comments), T08 *Bible* (6,713 comments), and T04 *Scientific Theories* (6,002 comments) fall under this category of topics. The universe itself and the Bible are proposed as evidence and sources of knowledge for the existence of God. Meanwhile, a series of scientific formulations such as the theory of evolution and the big bang theory are discussed as counterevidence.

To a certain extent, T10 *Truth Claims* and T07 *Cross Examination* bear some elements of the previous questions. The former topic is associated with 7,355 comments and entails users' assertions about what they believe is true and rejections of others' arguments as lies. It can be also described as a fundamentalist topic since the users engage in claims that they are the ones holding the truth. The latter topic, T07 *Cross Examination,* appears in 4,814 comments. It represents a typical debating strategy where members of one side call upon the members of the other side for further clarifications and explanations often with the view to expose fallacies and unsubstantiated arguments.

T05 *Morality* is found in 3,942 comments and constitutes the least discussed topic out of the ten extracted. The concern about morality comes as a logical derivative of the question regarding the existence of God. If God does not exist, then what keeps humanity moral? The underlying assumption informing this sort of arguments is that religion constitutes the foundation of human morality. In the absence of an observing higher being,

individuals will succumb to their primitive, self-interested instincts. In this topic, the users open the discussion about moral relativism, objective, and subjective morals.

Last, T03 *Identity Statement* constitutes one of the most frequently emerging topics and is associated with a total of 7,508 comments. The topic is described with the given label because it seems to involve comments where the users explicitly state their (ir)religious identity along with any specific arguments or responses. These identity statements are often articulated in comparative terms, meaning that the users state their identity in an attempt to make the differences of perspective or behavior with the outgroup even more apparent.

All in all, it is fair to say that the discussed topics are theoretically and intuitively consistent with the context of debates between Christians and atheists lending support to the first hypothesis of the study. The only topic that is not directly related to a discussion between a religious and an irreligious group is T07 *Cross Examination*. However, since it constitutes an often used strategy in debates, it remains quite relevant to the conditions of the research design. Therefore, it appears that the natural priming in the videos activates the given social identities and frames the discussion successfully.

Next, I turn to the results of the chi-square analysis of independence. The purpose of this analysis is to identify whether the examined (ir)religious groups favor specific topics. According to H_2, each of the groups will tend to be associated with topics that reflect fundamental propositions of their identity. For example, topics such as T02 *Jesus the Savior*, T05 *Morality*, T08 *Bible*, T09 *Creation*, and T10 *Truth Claims* would be expected to be more popular among Christian users, while topics such as T04 *Scientific Theories* would be more likely to emerge in the comments of atheist users. This is because the subjects of discussion in these topics have been already linked with the respective groups in previous studies and/or common knowledge.

The results of the chi-square analysis of independence partially support these hypotheses. As Table 4.2 shows, T02 *Jesus the Savior* [χ^2 (1, 52,607) = 1246.067, p< .001], T05 *Morality* [χ^2 (1, 52,607) = 10.653, p< .01], T08 *Bible* [χ^2 (1, 52,607) = 273.499, p< .001], T09 *Creation* [χ^2 (1, 52,607) = 49.166, p< .001], T10 *Truth Claims* [χ^2 (1, 52,607) = 39.922, p< .001] are indeed more likely to be invoked by Christian users.

In contrast to the predictions for Christians, atheists are not more likely to discuss T04 *Scientific Theories* [χ^2 (1, 52,607) = .427, p= .261] in comparison to Christians. In fact, only T01 *Burden of Proof* is more prevalent among atheist users [χ^2 (1, 52,607) = 168.730, p< .001]. Seeking evidence of God's existence from the believers and placing the burden of proof on the ones making the positive claim seems to be atheists' strongest card in the debate.

The remaining three topics, T03 *Identity Statement* [χ^2 (1, 52,607) = .110, p= .375], T06 *Belief* [χ^2 (1, 52,607) = 2.243, p= .069], and T07 *Cross Examination* [χ^2 (1, 52,607) = .067, p= .261] do not seem to be associated with either group specifically. Christian and atheist users are equally likely to engage in identity statements, explain the nature of their beliefs about God and religion, and request from their counterparts to support their claims.

Table 4.2: Chi-Square Test for Independence

Topic	Label	Observed		Expected		χ^2
		Christian	Atheist	Christian	Atheist	
T01	Burden of Proof	3369	4314	3895.0	3788.0	168.730***
T02	Jesus the Savior	3921	1404	2699.6	2625.4	1246.067***
T03	Identity Statement	3793	3715	3806.3	3701.7	.110
T04	Scientific Theories	3019	2983	3042.8	2959.2	.427

(table continues)

Topic	Label	Observed		Expected		χ^2
		Christian	Atheist	Christian	Atheist	
T05	Morality	2097	1845	1998.5	1943.5	10.653**
T06	Belief	4116	4126	4178.4	4063.6	2.243
T07	Cross Examination	2432	2382	2440.5	2373.5	.067
T08	Bible	4036	2677	3403.3	3309.7	273.499***
T09	Creation	4203	3526	3918.3	3810.7	49.166***
T10	Truth claims	3980	3375	3728.7	3626.3	39.922***

4.1.4 Sentiment Analysis

Sentiment analysis was also performed at the comment level. With the help of R Studio and the use of two dictionaries of positive and negative words (Liu, Hu, & Cheng 2005), an overall sentiment score was assigned to each comment depending on the frequencies of positive and negative terms employed in it.

Table 4.3 demonstrates some basic descriptive statistics of the sentiment distribution for the overall dataset and the comments belonging to Christians and atheists separately. The sentiment distributions for the two groups are quite comparable, although the distribution for atheists appears to be slightly more skewed on the left tail, meaning that there are fewer extreme negative sentiment scores among the atheist users.

Table 4.3: Descriptive Statistics of Sentiment Distribution by Religious Identity

	Christian	**Atheist**	**Overall**
N	26,670	25,937	52,607
Mean	-.0398	-.2505	-.1437

(table continues)

	Christian	Atheist	Overall
Standard Error	.0127	.0116	.0086
Median	0	0	0
Mode	0	0	0
Standard Deviation	2.0758	1.8613	1.9758
Kurtosis	36.469	34.290	35.893
Skewness	-.814	-1.336	-1.012
Range	77.00	77.00	84.00
Minimum	-47.00	-40.00	-47.00
Maximum	30.00	37.00	37.00

Next, an independent samples t-test was assessed whether Christians' and atheists' sentiment scores were statistically different. Levene's test [F(1, 52,605)= .327, p=.567)] indicated that the variances between the two groups are equal. Moreover, the t-test [t(52,605)=12.244, p< .001] suggests there is a significant difference in the sentiment scores for Christians (M=-.04, sd=2.08) and atheists (M=-.25, sd=1.86)[8] with atheists using more negative terms on average than Christians.

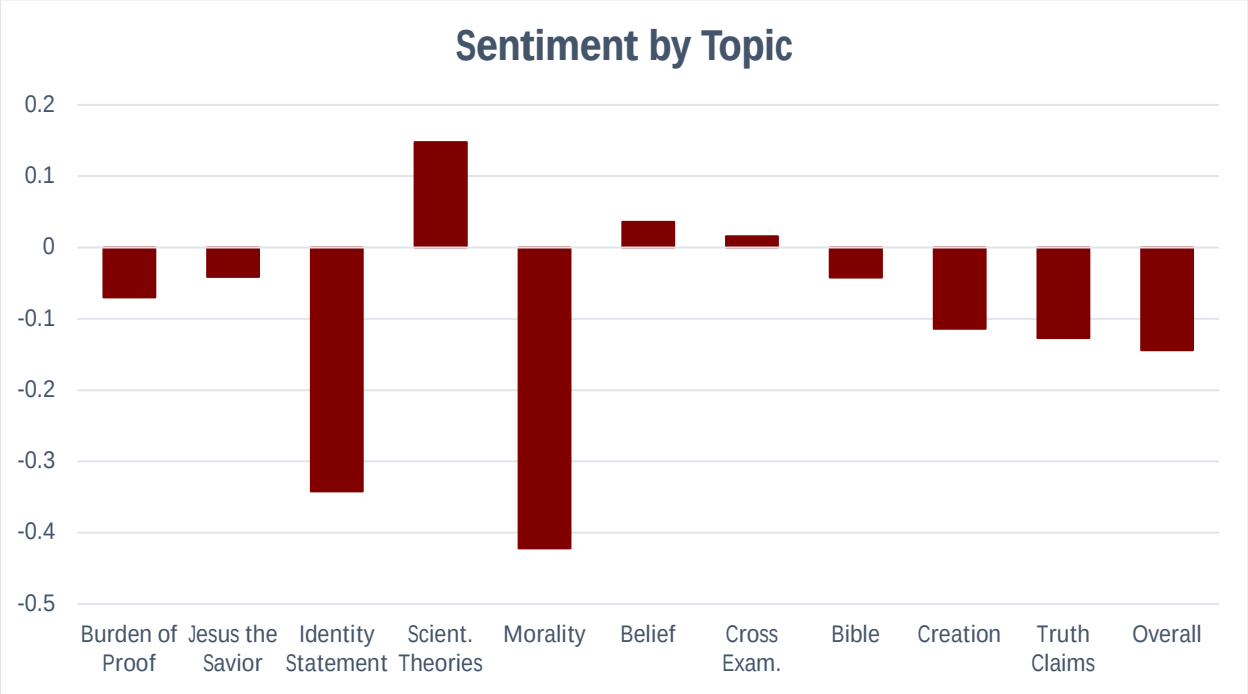
In order to examine the variation of sentiment across topics, analysis of variance (ANOVA)[9] was conducted. Figure 4.2 shows the average sentiment score by topic. More specifically, T05 *Morality* [F(1, 52,606)=12.509, p<.001] is discussed with the most negative terms (M= -.42, sd=3.51) in comparison to the comments where the topic does not emerge (M= -.12, sd=1.79). Similarly, comments in which T03 *Identity Statement* appears [F(1,

[8] Means and standard deviations are rounded at the second decimal point.

[9] In this case, ANOVA was conducted instead of independent samples t-test since some comments can be associated with more than one topics, thus violating the assumption of independent observations.

52,606)=88.766, p<.001] tend to be more negative on average than comments in which the topic does not appear.

Figure 4.2: Average Sentiment Score by Topic



In contrast, while T01 *Burden of Proof* [F(1, 52,606)=12.509, p<.001], T02 *Jesus the Savior* [F(1, 52,606)=15.969, p<.001], and T08 *Bible* [F(1, 52,606)=20.327, p<.001] are generally discussed in negative terms, the comments associated with each of these topics tend to be less negative on average than the comments without the topics (M_{01}=-.07, sd=2.36 < Mw=-.16, sd=1.90, M_{02}=-.04, sd=3.47 < Mw=-.16, sd=1.73, M_{08}=-.04, sd=2.76 < Mw=-.16, sd=1.83)[10].

T04 *Scientific Theories* [F(1, 52,606)=147.854, p<.001], T06 *Belief* [F(1, 52,606)=81.208, p<.001], and T07 *Cross Examination* [F(1, 52,606)=34.815, p<.001] tend to be discussed in more positive terms on average (M_{04}=.15, sd=2.85 > Mw=-.18, sd=1.83,

[10] Mw is used to designate the average score for the comments where the topic does not appear. An additional presentation of the results of the Analysis of Variance can be found in Table F.1 in Appendix F.

M_{06}=.04, sd=2.66 > Mw=-.18, sd=1.82, M_{07}=.02, sd=2.81 > Mw=-.16, sd=1.87). This is an interesting finding since, with the exception of T03 *Identity Statement*, all of the topics that were equally discussed by Christians and atheists are associated with higher levels of positive terminology.

Finally, comments where T09 *Creation* [F(1, 52,606)=2.012, p=.156] and T10 *Truth Claims* [F(1, 52,606)=.611, p=.434] are discussed do not differ in terms of sentiment from the comments where these topics are not discussed (M_{09}=-.11, sd=2.72 = Mw=-.15, sd=1.82, M_{10}=-.13, sd=2.64 = Mw=-.15, sd=1.85).

4.1.5 Topic-Sentiment Analysis

Once the topics are extracted and sentiment analysis is performed, the next step is to assess whether specific topics elicit differential use of emotionally charged terms between the two groups and the direction of this emotionality. In other words, topic-sentiment analysis aims to examine the degree of sentiment polarization across topics between Christian and atheist users. In this case, polarization is hypothesized to be driven by in-group and out-group biases which would lead Christian users to employ more positive terms when discussing topics closely associated to their identity (e.g. Jesus the Savior, Bible, Creation, etc.) and atheist users to employ negative terms when discussing the same topics that are associated with the Christian outgroup's identity and vice versa (H_{3a} and H_{3b}).

For the purposes of topic-sentiment analysis, sentiment scores were recoded into three comprehensive sentiment categories. Thus, negative sentiment scores ranging from -47 to -1 were recoded into *Negative*, positive sentiment scores ranging from 1 to 37 were recoded into *Positive*, and neutral scores of 0 were recoded into *Neutral*. Table 4.4 demonstrates the sentiment-source polarity index (PI). The polarity index (PI) is based upon

the premises of a Chi-square analysis for independence between (ir)religious group and sentiment and is calculated independently for each of the 10 topics.

For polarity scores, only positive and negative sentiment values are taken into account. As one can see, all topics exhibit high PI values and low values of significance, indicating substantial differentiation in the use of positive and negative terms between the two groups. The highest polarity score is found for T09 *Creation* [PI(1, 5150)=67.668, p<.001], followed by T02 *Jesus the Savior* [PI(1, 3914)=59.521, p<.001], T06 *Belief* [PI(1, 5763)=54.894, p<.001], and T08 *Bible* [PI(1, 4541)=52.837, p<.001],. According to the previous findings, three out of these four most polarizing topics are more likely to be favored by Christians, while T06 *Belief* is equally discussed by Christians and atheists. However, any discussion about belief between a religious and a non-religious group can carry an inherent polarization between positive and negative terms since the religious group – Christians, in this case – affirms belief whereas atheists negate belief.

Table 4.4: Polarization Index by Topic

Topic	Label	PI	df	Significance
T01	Burden of Proof	29.137	1	.000
T02	Jesus the Savior	59.521	1	.000
T03	Identity Statement	30.314	1	.000
T04	Scientific Theories	3.460	1	.034
T05	Morality	11.967	1	.000
T06	Belief	54.894	1	.000
T07	Cross Examination	25.307	1	.000
T08	Bible	52.837	1	.000
T09	Creation	67.668	1	.000
T10	Truth Claims	13.836	1	.000

Table 4.5: Topic by Sentiment for Christian and atheist users

		Christian				Atheist				
		Sentiment								
Topic	Label	Negative	Neutral	Positive	Mass	Negative	Neutral	Positive	Mass	X^2
T01	Burden of Proof	1029 (30.5%)	1164 (34.6%)	1176 (34.9%)	3369 (9.6%)	1516 (35.1%)	1525 (35.4%)	1273 (29.5%)	4314 (14.2%)	29.712***
T02	Jesus the Savior	1337 (34.1%)	1036 (26.4%)	1548 (39.5%)	3921 (11.2%)	621 (44.2%)	375 (26.7%)	408 (29.1%)	1404 (4.6%)	59.455***
T03	Identity Statement	1449 (38.2%)	1159 (30.6%)	1185 (31.2%)	3793 (10.8%)	1653 (44.5%)	1069 (28.8%)	993 (26.7%)	3715 (12.2%)	33.170***
T04	Scientific Theories	870 (28.8%)	1005 (33.3%)	1144 (37.9%)	3019 (8.6%)	901 (30.2%)	1030 (34.5%)	1052 (35.3%)	2983 (9.8%)	4.488
T05	Morality	828 (39.5%)	545 (26.0%)	724 (34.5%)	2097 (6.0%)	854 (46.3%)	413 (22.4%)	578 (31.3%)	1845 (6.1%)	18.929***
T06	Belief	1310 (31.8%)	1193 (29.0%)	1613 (39.2%)	4116 (11.8%)	1550 (37.6%)	1286 (31.2%)	1290 (31.3%)	4126 (13.6%)	59.555***
T07	Cross Examination	785 (32.3%)	735 (30.2%)	912 (37.5%)	2432 (7.0%)	883 (37.1%)	777 (32.6%)	722 (30.3%)	2382 (7.8%)	28.501***
T08	Bible	1261 (31.2%)	1313 (32.5%)	1462 (36.2%)	4036 (11.5%)	1042 (38.9%)	859 (32.1%)	776 (29.0%)	2677 (8.8%)	53.052***
T09	Creation	1339 (31.9%)	1344 (32.0%)	1520 (36.2%)	4203 (12.0%)	1337 (37.9%)	1235 (35.0%)	954 (27.1%)	3526 (11.6%)	75.376***
T10	Truth claims	1321 (33.2%)	1310 (32.9%)	1349 (33.9%)	3980 (11.4%)	1227 (36.4%)	1136 (33.7%)	1012 (30.0%)	3375 (11.1%)	14.279***
	Mass	11529 (33.0%)	10804 (30.9%)	12633 (36.1%)	34966 (100%)	11584 (38.2%)	9705 (32.0%)	9058 (29.8%)	30347 (100%)	

This crucial difference in stance seems to inform the sentiment distribution across topics. A series of chi-square tests of independence between (ir)religious group and sentiment further clarifies the direction of polarization. The results presented in Table 4.5 indicate that Christians are consistently more likely to use positive terms when discussing each of the topics in comparison to atheists, while atheists are consistently more likely to use negative terms in comparison to Christians. The only exception to this pattern is T04 *Scientific Theories* [χ^2 (2, 6002) = 4.488, p= .106] in which Christians and atheists do not differ in their usage of positive (37.9% vs. 35.3%) and negative terms (28.8% vs. 30.2% respectively).

Nevertheless, the fact that the percentage difference in the usage of positive and negative terms between Christians and atheists appears to be more pronounced for T02 *Jesus the Savior*, T08 *Bible*, and T09 *Creation* – all specific core elements of the Christian identity – suggests that the polarization cannot be singularly attributed to the positive and negative nature of beliefs and claims about the existence of God and the espousal of religion that characterizes the two groups. In contrast, to the extent that the pattern of positive in-group and negative out-group biases is more robust to the only topics which are explicitly linked with fundamental doctrines of the Christian faith, instead of more general topics that could emerge in the discussion with any theist group, the results offer at least partial support of the hypotheses H_{3a} and H_{3b}.

Regarding hypothesis H_4, it was predicted that atheists will tend to exhibit fewer instances of in-group and out-group bias than Christians. So far, the results offer partial support to this hypothesis as well. Atheists do seem to exhibit fewer instances of positive in-group bias since they do not use more positive terms than Christians for any of the discussed topics, not even T01 *Burden of Proof* which was their preferred topic, or T04

Scientific Theories which often favor in their narratives in the existing literature. On the other hand, they appear to exhibit more instances of negative out-group bias as they discuss the topics favored by Christian users in a distinctively more negative manner.

The latter result provides interesting insights on the relation of the atheist identity with the use of negative language, while, at the same time, it suggests that at this stage of their identity development, they define themselves more clearly in relation to the perceived differences from the outgroup than similarity with other in-group members.

4.1.6 Correspondence Analysis

With the use of Minitab 17, I produced a topic-by-sentiment contingency table for the comments made on the Christian – atheist debate and, subsequently, calculated the chi-square distances for the table. According to the results presented in Table 4.6, the sentiment level appears to vary by topic in the comments of Christians (χ^2 =877.388, p<.001) and atheists (χ^2 =1065.585, p<.001).

Regarding the general evaluation of the model, the eigenvalues for the dimensionality detection and the chi-square statistic (see Table 4.7) indicate that the model fit is good, but it explains only 2.97% of the variation on sentiment as a function of topics for Christian and atheist users. Moreover, the two first principal components which are used to plot the data cumulatively explain 92.86% of the variability. This means that the display of data into two dimensions will not result in any significant loss of information. As one can see in Table 4.7, component 1 seems to have a higher percentage of inertia, capturing 75.84% of the variation, in comparison to component 2 which captures a mere 17.01% of the variation. In other words, component 1 can be considered as a more reliable indicator of this set of data and offers a better graphical representation of them.

Table 4.6: Correspondence Analysis for Christian and Atheist Users, Chi-Square Distances

		Christian				Atheist			
		Sentiment							
Topic	Label	Negative	Neutral	Positive	X^2	Negative	Neutral	Positive	X^2
T01	Burden of Proof	78.940	8.994	64.694	152.628	17.254	128.736	40.399	186.389
T02	Jesus the Savior	167.705	27.326	260.541	455.572	110.773	218.978	147.910	477.661
T03	Identity Statement	11.545	5.542	49.169	66.256	77.559	1.949	2.236	81.744
T04	Scientific Theories	33.883	0.149	0.247	34.279	25.119	21.400	57.938	104.457
T05	Morality	25.101	17.584	1.941	44.626	34.293	50.948	1.792	87.033
T06	Belief	14.426	21.293	0.222	35.941	5.320	3.069	18.892	27.281
T07	Cross Examination	4.936	4.723	0.393	10.052	0.997	5.318	4.427	10.742
T08	Bible	4.878	36.943	20.602	62.423	18.553	19.230	25.805	63.588
T09	Creation	0.470	3.353	0.419	4.242	0.835	6.520	12.969	20.324
T10	Truth claims	0.397	7.162	3.810	11.369	4.603	1.700	0.063	6.366
	Total	342.281	133.068	402.039	877.388***	295.306	457.847	312.432	1065.585***

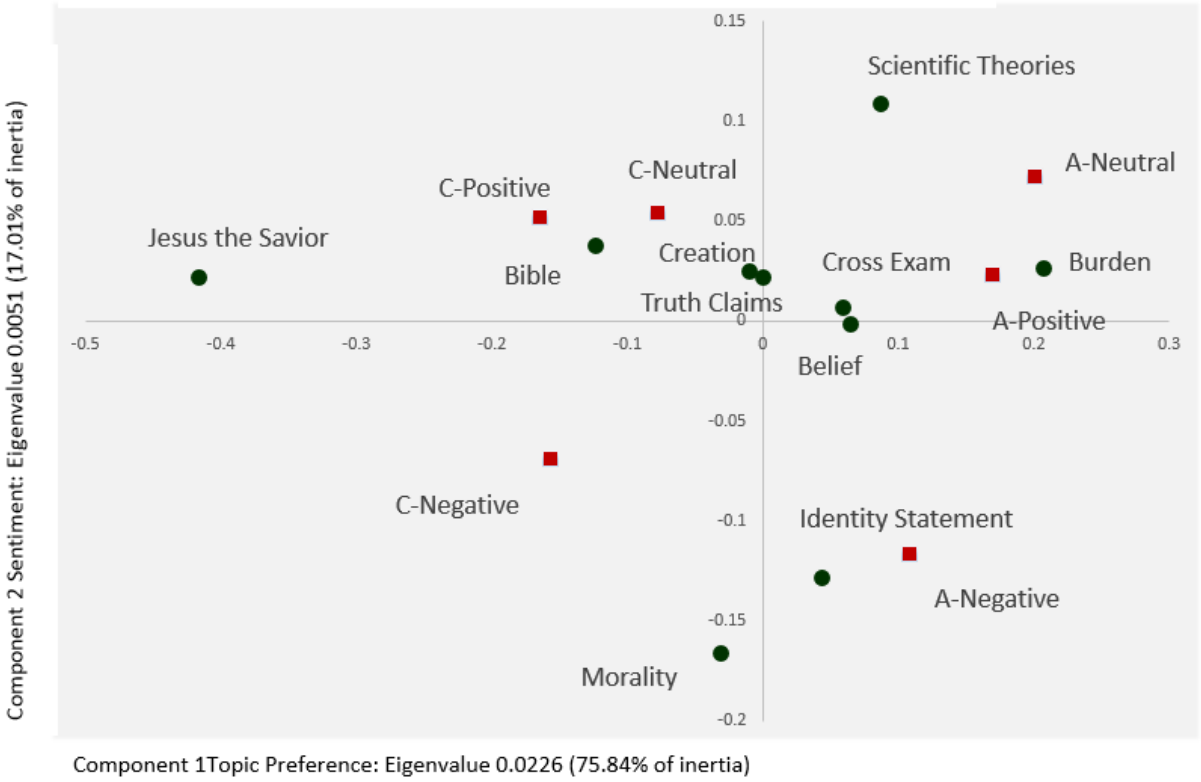
Table 4.7: Dimensionality Detection and Model Diagnostics

Component	Eigenvalues	% of Inertia	Cumulative %	X^2	p-value
1	0.0226	75.84%	75.84%		
2	0.0051	17.01%	92.86%		
3	0.0015	5.15%	98.01%		
4	0.0005	1.59%	99.60%		
5	0.0001	0.40%	100%		
Total	0.0297			1942.973***	0.000

Figure 4.3 constitutes a graphical display of the results of correspondence analysis. Since the topic-sentiment graph is plotted symmetrically, the distances between topics and the distances between sentiment levels are important for the interpretation of their

relationship. The closer a topic is found to a sentiment level in the graph, the higher their association and vice versa.

Figure 4.3: Topic-Sentiment Map for Christian – Atheist Debate



A close examination of the correspondence map suggests that it constitutes an almost ideal representation of the topic-sentiment polarization by (ir)religious identity. The first component reflects the topic favorability by identity in a progression from Christian identity in the left side of the x-axis to atheist identity on the right side of the x-axis. T02 *Jesus the Savior* is found the farthest to the left because it is the topic with the largest difference in the number of comments discussed by Christian in comparison to atheist users. T08 *Bible*, T09 *Creation*, T10 *Truth claims*, and T05 *Morality* follow in Christian preference, and that's why they are mainly placed to the left of the y-axis. T03 *Identity Statement*, T04 *Scientific Theories*, T06 *Belief*, and T07 *Cross Examination* constitute the liminal space of no preference between the two groups, while T01 *Burden of Proof* is found

the farthest to the right because it's the only topic predominantly discussed by atheist users. This interpretation of the y-axis is corroborated by the chi-square results previously presented in Table 4.2.

Of course, the placement of the topics in the two-dimensional space of the map is slightly adjusted to account for the second component which represents sentiment. The closest to the bottom of the y-axis, the more negative the sentiment and the closest to the top of the axis, the more positive. Therefore, it is no surprise that T05 *Morality* and T03 *Identity Statement* occupy the lowest positions in the y-axis continuum, while T04 *Scientific Theories* is the topic closest to the top of the axis. As one can also see in Figure 4.3, T05 and T03 exhibit the highest negative scores across topics, T04 elicit the most positive terms, and the remaining of the topics have less negative sentiment scores than the overall sentiment across comments which explains why they are plotted mainly above the x-axis.

Accounting for both components, one can notice that the top left quadrant represents the topics favored by Christians both in terms of discussion and emotionality. At the same time, these topics are discussed with considerable emotional negativity by atheist users. In contrast, the top right quadrant represents a more nuanced space with the favorability of topic discussion and sentiment for atheists. It appears that the correspondence analysis adjusts for the general negative terminology of the atheist users and associates T04 *Scientific Theories* and T06 *Belief* more with the atheist identity. In the bottom left quadrant, we can find a topic favored by Christians in terms of discussion occurrence but otherwise discussed in quite negative terms. Possibly, this is because morality is talked about as a concept that would prevent someone from doing the wrong thing (negative language use; also see the descriptive terms of the topic where "wrong" and "kill" are present) rather than encouraging someone to do the right thing (positive language

use). Lastly, the bottom right quadrant features T03 *Identity Statement* which although it was not associated with any of the given groups, it is characterized by substantial negative terminology on behalf of the atheist users. Once again, this can stem from the definition of atheism as a negation of religion which paints how people perceive and articulate their identity.

4.1.7 Discussion

The present case study sought to examine the content and level of intergroup topic-sentiment polarization among Christian and atheist YouTube users. Building upon the premises and existing research on social identity theory, it was hypothesized that the content, the topic preferences, and the sentiment attached to the topics will tend to be driven by the commenters (ir)religious identities.

Indeed, the results suggest that the extracted topics reflect content coherent with the context of inter(ir)religious discussions with virtually no diversion towards other subjects (H_1). Moreover, the results are consistent with the hypothesis H_2. While social identity theory accurately predicts the topic preferences of Christian users, it seems harder to predict the topic preferences of atheist users. This can be happening due to a number of reasons. First, although atheism is not a new walk of life, it has been largely construed as an individual instead of a social identity. The sense of groupness that is required for a social membership is a rather recent advent for atheists (Cimino and Smith 2011, 2014, Smith 2013). From that point of view, the establishment of collective norms regarding the group's beliefs, attitudes, and narratives among others has not been completed yet. Second, in a related point, atheists often report to value individuality and independence of thought (Hunsberger and Altemeyer 2006, Smith 2013) which may deter them from aligning with the

popular rhetoric of other atheists. Third, despite evidence suggesting otherwise for members of atheist organizations (see Smith 2013), it may still be the case that atheism is organized around unbelief in God and the rejection of religion.

The latter point can be further corroborated by the consistent negative linguistic bias that atheists express on almost any topic of the inter(ir)religious discussion, and particularly the ones directly associated with doctrinal elements of Christianity. In other words, although they demonstrate fewer instances of positive in-group bias, as hypothesis H_4 suggested, they exhibit more instances of negative outgroup bias than Christians. Thus, hypothesis H_4 is only partially supported. Of course, we also need to keep in mind that the data used for these study are not the product of unstructured religious discussions. That is, the "us" vs. "them" priming of the videos and the subsequent commentaries on religion and God can generally compel atheists to activate those aspects of their identity that reflects their relationship to these subjects attributing secondary pertinence to other, more positive elements of their identity.

The extensive use of negative terms by atheist users complicates the evaluation of the results in relation to hypotheses H_{3a} and H_{3b}. Although social identity theory would predict the occurrence of more positive language when each group refers to topics associated with the in-group and the use of more negative language when they refer to topics associated with the outgroup, the topic-sentiment analysis indicated that Christians are consistently more likely to use positive language and atheists are consistently more likely to use negative language across all topics with the exception of the subject of scientific theories. However, there is some evidence for the partial support of both hypotheses. In the first place, the pattern of in-group positive bias by Christians and outgroup negative bias by atheists, a.k.a. the sentiment polarization appears to be stronger for the topics that reflect

Christian-specific narratives. Secondly, the projection of the topic-sentiment data into a two-dimensional space through the correspondence map suggests that the sentiment in topics such as burden of proof, scientific theories, and belief fits better the atheist profile of positive in-group bias than it was initially evaluated from the chi-square test of independence.

4.2 Case Study 2: Christian vs. Muslim Debates

4.2.1 Overview

The second case study examines the computer-mediated communications of Christians and Muslims as they take place in the commentary section of YouTube videos featuring Christian – Muslim debates. Similarly with the previous case study, apart from the personal research interest in Christians and Muslims, these two groups represent majority-minority relations. In this case, however, majority-minority dynamics between the religious groups in question are substantially more complex. The advent of participatory media allows users to utilize global platforms in order to share their input and communicate with others no matter how geographically distant they are (Blank and Reisdorf 2012). While this capacity of participatory media is advantageous for accessing and collecting data without the limitations of geolocation, it restricts my ability to assess the extent to which Christian and Muslim users come from countries where their religion has a majority or minority status[11]. Nevertheless, it has been argued that the Internet perpetuates the linguistic and cultural hegemony of the West (Danet and Herring 2007). If we take into account that the

[11] My empirical experience with the data suggests users come from a variety of places. For example, there are Christian users who report that they reside in predominantly Muslim countries and vice versa. For the most part, it appears that the users (regardless if they are Christian or Muslim) come from regions of the world where their religion has majority status, but accurate estimates are difficult to obtain.

debates featured in the videos were taking place in English and almost all of the Christian and Muslim users commented in English, we can agree that Christians come into these commentaries from a cultural vantage point.

With the gradual popularization of negative attitudes towards Muslims and the persistent prejudice against them across western countries (Amnesty International 2012, Bleich 2009, Gallup World 2013, Ogan et al. 2013, Zick et al. 2011), the current state of social affairs strongly reminds Huntington's (1993) dystopian clash of civilizations between the (Christian) West and the Islamic World. Relevant research among Christians reveals consistent elements of in-group favoritism and outgroup prejudice (Hunsberger and Altemeyer 2006), a finding corroborated with Muslims as an outgroup (Rowatt, Franklin, and Cotton 2005). In contrast, to the best of my knowledge, there are no similar studies examining Muslims' feelings of in-group favoritism and out-group hostility, a gap the present research seeks to address.

Nevertheless, Christians and Muslims are found to score high on religious fundamentalism (Altemeyer and Hunsberger 1992, Hunsberger 1996). This result has useful implications to the extent that religious fundamentalism has been associated with beliefs about the inerrancy of one's religion and of the religious guidelines that need to be followed to build the adherence's relation with the higher power (Altemeyer and Hunsberger 1992). From that point of view, the debate regarding which religious tradition holds the truth about the nature of God can be an important component of polarization among Christians and Muslims.

To rearticulate the predictions based on social identity theory, it is argued that (a) the content of Christian and Muslim debates will include fundamental components of the identity of each group (e.g. inerrancy of one's religious tradition), (b) the topics will reflect

the processes of in-group favoritism and outgroup prejudice regarding distinctive beliefs among each group and/or positive and negative stereotypes associated with them, and (c) the (ir)religious identities of the two groups will trigger considerable topic-sentiment polarization. Last, in comparison to the Christian – atheist debates, (d) the normative effect of the groups' religious identity on the content of their discussion will be more robust.

4.2.2 Descriptive Statistics

A total of 24,179 comments were entered in the analysis for the Christian – Muslim debate posted by 851 unique usernames. Appendix A shows that the number of comments per username range between 1 and 2,427 with an average of 28.41 and a median of 6. Once again, the distribution of comments among users is positively skewed. In contrast, the total number of comments made by religious identity have been quite comparable; 12,729 comments belong to Christian users (52.6%) and 11,450 comments belong to Muslim users (47.4%).

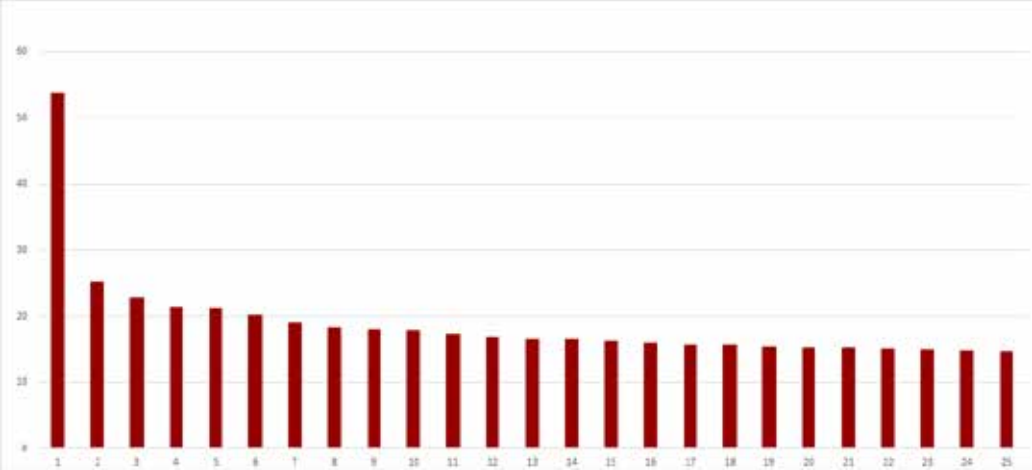
Since the contribution of 2,427 comments by a single username constitutes a rather significant portion of the 24,179 comments in this dataset, the topic extraction was repeated without the comments from the said username. According to the reported results in Appendix B, the removal of these comments leads to some changes in the nuances of a couple of the topics, but it does not alter fundamentally the content of the topics.

4.2.3 Topic Models

Similarly, with the procedures for the topic extraction in the previous case study, SAS Enterprise Miner 14.3 was used as a topic extraction tool. The same dictionary made of 237

synonym terms was introduced to the analysis to facilitate the consolidation of topics (see Appendix C).

Figure 4.4: Eigenvalues for Topic Dimensionality Detection



The change-point detection test examining the distribution of eigenvalues presented in Figure 4.4 indicated that the optimal number of topics representing the comments in the Christian vs. Muslim debates were 7 (see Appendix D). Therefore, SAS Enterprise Text Miner was set to extract 7 topics. Once again, the labeling of the topics took into consideration the high-loading descriptive terms leading to rather straightforward labels. T02 *Identity Statement* was the exception to this approach since the descriptive terms did not provide a clear, concrete interpretation of their own merit. Therefore, several individual comments pertaining to the topic were examined to gain a better understanding of the related discussion[12].

A brief glance at Table 4.8 suggests that the commentaries of Christians and Muslims revolve substantially around theological issues. The most commonly emerging topic is T07 *Jesus as Prophet* with 3,989 comments associated with it. Here, the users debate the nature of Jesus promoting interpretations which affirm his importance as a religious figure but

[12] Table E.2 in Appendix E illustrates a sample of comments with high loadings for T02 Identity Statement.

reject the idea he was anything but God. In contrast, Topic 06 *Jesus' Divinity,* which appears in 2,597 comments, reflects views mainly supporting Jesus' divine origin and the importance of becoming man for the moral restoration of humanity. The third matter of theological concern is presented in T01 *Trinity,* a topic emerging in 3,035 comments, in which Muslim and Christian users debate the reasonableness of the Christian doctrine of a triune God.

Table 4.8: Emergent Topics

Topic	Label	Descriptive Terms	#Docs
T01	Trinity	+god, +son, +father, +spirit, +holy	3035
T02	Identity Statement	+muslim, +christian, +islam, +religion, +belief	3551
T03	Scripture	+bible, +quran, +scripture, +read, +word	3691
T04	Islamic Scripture	+allah, +muhammad, +quran, +prophet, +islamscrip	3408
T05	Cross Examination	+answer, +question, +evidence, +lie, +claim	2557
T06	Jesus' Divinity	+sin, +die, +man, +god, +kill	2597
T07	Jesus as Prophet	+jesus, +prophet, +muhammad, +bible, +god	3989

Apparently, these three topics represent core theological beliefs of Muslims and Christians respectively. The concept of Trinity and the nature of Jesus – which contradicts or defends the Trinity depending on whether one dismisses or accepts his divinity – constitute significant points of departure for the two groups. This is not surprising as these doctrinal positions effectively distinguish the content of faith of these two religious groups. Thus, once again, the ontological question appears in the center of interreligious interactions. In the terms of social identity theory, the discussed points seem to represent the maximal intergroup distinction.

A second "cluster" of topics deals with scripture and religious texts. T03 *Scripture* is associated with 3,691 comments. In this set of comments, Muslim and Christian users make

references to the sacred writings of their religions and use passages to support their views and invalidate the arguments of the opposite side. Accordingly, in T04 *Islamic Scripture* emerging in 3,408 comments, the references focus mainly on Islamic religious texts. Therefore, at the intellectual level, the discussion taking place in relation to these two topics is largely epistemological in nature. Religious documents such as the Bible, the Quran, and the hadiths constitute the main sources of knowledge about the nature of God and bear significant normative power within the respective religious traditions.

Next, T02 *Identity Statement* is associated with 3,551 comments and closely resembles the similarly labeled topic in the previous case study. That is, Christians and Muslims typically identify themselves religiously in these comments, often in comparative terms. At the same time, the users describe what they stand for and offer their interpretation of the other religious group, a form of hetero-definition. This topic involves substantial stereotyping and altercations from both groups. From that point of view, it possibly serves as an attempt to maximize intergroup differences and maintain distinct group boundaries. Last, T05 *Cross Examination* appears in 2,557 comments. Similarly, with the results in the Christian vs atheist debates, this topic reflects a common practice among debaters who follow up the opposing side's arguments with questions and request additional evidence supporting their claims.

In short, 6 out of the 7 topics extracted for this set of comments deal with religious concepts and figures pertinent to the religious tradition of Islam and Christianity. A casual examination of the descriptive terms in Table 4.8 would suffice for someone to identify the general content of the analyzed text and the groups involved in it. The remaining topic (T05 *Cross Examination*) reflects the context of the debate in which the users express their

thoughts. Thus, it can be argued that the priming in the videos effectively increased the salience of Christian and Muslim identities and the content of their exchanges (H_1).

The next question to address is whether there are group specific topics and how they are distributed across groups. Drawing from the propositions of social identity theory, one would expect that each religious group would be more likely to discuss topics representing normative elements of their tradition (H_2). Thus, topics such as T01 *Trinity*, T03 *Scripture*, and T06 *Jesus' Divinity* would tend to be associated more with Christian users, while topics such as T04 *Islamic Scripture* and T07 *Jesus as Prophet* would tend to be associated more with Muslim users.

Table 4.9 summarizes the results of the chi-square analysis of independence. As we can see, T01 *Trinity* [χ^2 (1, 24,179) = 13.706, p< .001] and T06 *Jesus' Divinity* [χ^2 (1, 24,179) = 157.626, p< .001] are indeed favored among Christian users, while T07 *Jesus as Prophet* [χ^2 (1, 24,179) = 111.566, p< .001] is favored among Muslim users. In other words, these core religious doctrines constitute instances of in-group favoritism for each group respectively. In this case, in-group favoritism is not expressed towards other members of the group, but in the form of discursive adherence to elements of faith that shape perceptions of belonging.

In contrast, T03 *Scripture* and T04 *Islamic Scripture* demonstrate opposite patterns of association from the ones initially expected. T03 *Scripture* [χ^2 (1, 24,179) = 17.895, p< .001] seems to be more prevalent among Muslim users whereas T04 *Islamic Scripture* [χ^2 (1, 24,179) = 25.664, p< .001] appears more prevalent among Christian users. At a first glance, it seems odd that Muslims refer more to Christian religious texts than Christians and vice versa. However, a closer look at these two topics reveals that both groups attempt to invalidate and occasionally denigrate the other group's sources of knowledge by indicating contested passages, inconsistencies, historical inaccuracies, and whatever else could reduce

their reliability and could refute their infallibility, thus rendering the other group's sources and the group itself inferior. By deeming the outgroup's sources of knowledge and beliefs inferior, the members of the in-group can achieve positive distinctiveness, as social identity theory suggests.

Table 4.9: Chi-Square Test for Independence

Topic	Label	Observed		Expected		χ^2
		Christian	Muslim	Christian	Muslim	
T01	Trinity	1693	1342	1597.8	1437.2	13.706***
T02	Identity Statement	1747	1804	1869.4	1681.6	19.843***
T03	Scripture	1825	1866	1943.1	1747.9	17.895***
T04	Islamic Scripture	1931	1477	1794.1	1613.9	25.664***
T05	Cross Examination	1357	1200	1346.1	1210.9	.207
T06	Jesus' Divinity	1669	928	1367.2	1229.8	157.626***
T07	Jesus as Prophet	2002	1987	2100.0	1889.0	11.566***

T02 *Identity Statement* [χ^2 (1, 24,179) = 19.843, p< .001] is also group specific with Muslims contributing more than Christians to the emergence of this topic. This can be due to the significant anti-Muslim stereotyping[13] that takes place in the course of the discussion. Muslims appear to react to the negative external interpretation of Islam by reaffirming their identity and peacefully or aggressively reclaiming their right to self-determination. Lastly, T05 *Cross Examination* [χ^2 (1, 24,179) = .207, p= .332] appears to be the only not group-specific topic in the context of these commentaries as Muslims and Christians engage equally to this debate strategy.

[13] Often as violent and accused of terrorism.

4.2.4 Sentiment Analysis

Sentiment analysis was also performed for the Christian and Muslim debates. Similarly, with the previous case study, the analysis was conducted using R Studio and the same lexicons of positive and negative words (Liu, Hu, & Cheng 2005). The descriptive statistics of the sentiment distribution for the overall dataset and the comments belonging to Christians and Muslims separately are listed in the following Table 4.10. In contrast to the sentiment distribution for Christians and atheists, the present sentiment distribution exhibit larger variations for the two groups involved.

Not surprisingly judging from the distributions, Levene's test for equal variances [F(1, 24178)= 37.113, p<.001)] suggests that the variances in the sentiment scores of Christians and Muslims are not equal. Furthermore, the results of the independent samples t-test [t(24169.893)=-2.909, p= .004] show that there is a significant difference in the sentiment scores for Christians (M=-.21, sd=2.19) and Muslims (M=-.13, sd=1.93)[14] with Christians engaging in the use of more negative terms on average in comparison to Muslims.

Similarly, analysis of variance (ANOVA)[15] was conducted in order to examine whether the average sentiment in the comments associated with each topic statistically differs from the average sentiment in the comments in which the topic does not emerge. As we can see in Figure 4.5, T01 *Trinity* [F(1, 24178)=342.191, p<.001] is the only topic with positive sentiment (M= .47, sd=2.38) while the sentiment in the rest of the comments is on the negative side (M= -.27, sd=2.01).

[14] Means and standard deviations are rounded at the second decimal point.

[15] In this case, ANOVA was conducted instead of independent samples t-test since some comments can be associated with more than one topics, thus violating the assumption of independent observations.

Table 4.10: Descriptive Statistics of Sentiment Distribution by Religious Identities

	Christian	**Muslim**	**Overall**
N	12,729	11,450	24,179
Mean	-.2109	-.1338	-.1744
Standard Error	.0194	.0181	.0133
Median	0	0	0
Mode	0	0	0
Standard Deviation	2.1884	1.9349	2.0726
Kurtosis	68.614	14.184	50.162
Skewness	-3.118	-.255	-2.037
Range	75.00	51.00	79.00
Minimum	-52.00	-24.00	-52.00
Maximum	23.00	27.00	27.00

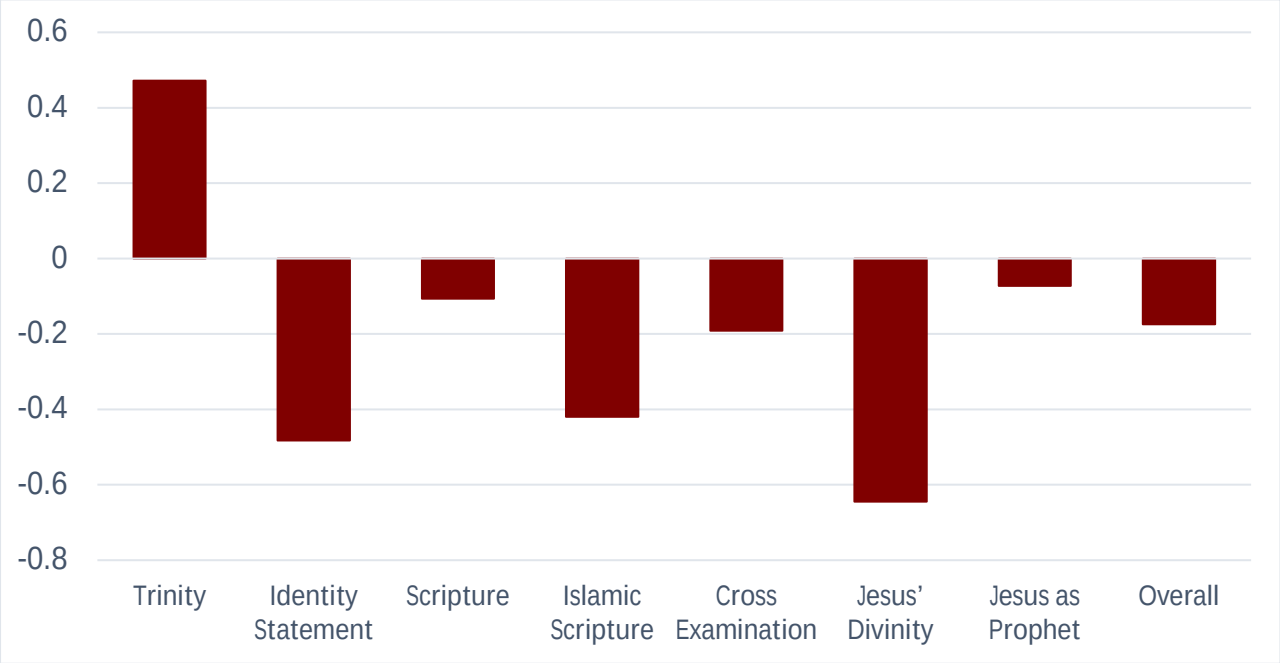
In contrast, T02 *Identity Statement* [F(1, 24178)= =92.265, p<.001] appears to entail more negative sentiment (M= -.48, sd=3.13) in comparison to the remaining comments (M= -.12, sd=1.82). A similar pattern is found for the sentiment in T04 *Islamic Scripture* [F(1, 24178)=55.784, p<.001], and T06 *Jesus' Divinity* [F(1, 24178)=150.668, p<.001][16]. In other words, the commentaries associated with these three topics seem to include more negative terminology than the ones where the topics are not present (also see Figure 4.5.).

Accordingly, the sentiment in T03 *Scripture* [F(1, 24178)=4.681, p<.05], while negative in general, it is slightly less negative on average (M=-.11, sd=2.44) than the sentiments in the comments without the topic (M=-19, sd=2.00). The average sentiment score in T07 *Jesus as Prophet* [F(1, 24178)=11.509, p<.01] is also less negative (M=-.07,

[16] A detailed account of the related figures can be found in Table F.2 in Appendix F.

sd=2.65) than the sentiment in the remaining comments (M=-.19, sd=.1.94). Last, there is no significant difference for T05 *Cross Examination* [F(1, 24178)=.189, p=.664].

Figure 4.5: Average Sentiment Score by Topic



4.2.5 Topic-Sentiment Analysis

Similarly, with the previous case study, topic-sentiment analysis was performed to examine the extent and direction of polarization between Christian and Muslim users across the different topics they discussed. It is hypothesized that Christians and Muslims will tend to use more positive terms for topics reflecting their identity (e.g. Trinity, Jesus' divinity, and Islamic scripture, Jesus as prophet for each group respectively) than the members of the outgroup (H_{3a}). Moreover, Christians and Muslims will tend to use more negative terms for topics reflecting outgroup identity (H_{3b}).

Once again, sentiment scores were aggregated into three sentiment categories. Therefore, negative sentiment scores ranging from -52 to -1 were recoded into *Negative*,

positive sentiment scores ranging from 1 to 27 were recoded into *Positive*, and neutral scores of 0 were recoded into *Neutral*.

Table 4.11 shows the polarity index (PI) values for the seven topics which emerged in the context of Christian – Muslim debates. In this case study, 5 out of the 7 topics demonstrate high values of polarity. More specifically, T04 *Islamic Scripture* has the highest polarity score [PI(1, 2409)=48.723, p<.001], followed by T06 *Jesus' Divinity* [PI(1, 2049)=31.868, p<.001], T07 *Jesus as Prophet* [PI(1, 2805)=11.334, p<.001], T02 *Identity Statement* [PI(1, 2658)=8.618, p<.01], and T05 *Cross Examination* [PI(1, 1764)=6.620, p<.01]. The remaining two topics – T01 *Trinity* and T03 *Scripture* – do not exhibit statistically significant variation in the use of positive and negative terms by Christian and Muslim users.

Although the lack of polarity for T01 *Trinity* and T03 *Scripture* may seem odd, we need to keep in mind that despite the disagreements regarding the doctrine of the triune God, the figures featured in the Trinity constitute revered figures in both religious traditions. Similarly, several religious texts are sacred for both religious groups, although to different extents. From that point of view, extreme negative language is avoided on both sides.

Table 4.11: Polarization Index by Topic

Topic	Label	PI	df	Significance
T01	Trinity	1.481	1	.121
T02	Identity Statement	8.618	1	.002
T03	Scripture	.379	1	.283
T04	Islamic Scripture	48.723	1	.000
T05	Cross Examination	6.620	1	.006
T06	Jesus' Divinity	31.868	1	.000
T07	Jesus as Prophet	11.334	1	.000

According to Table 4.11, it is evident that topic T01 *Trinity* [χ^2 (2, 3035)=2.783, p=.249] is discussed in mainly positive terms by Christians (45.5%) and Muslims (42.5%), while T03 *Scripture* [χ^2 (2, 3691)=6.460, p< .05] elicits a slightly more negative linguistic approach from Christians (34.5%) in comparison to Muslims (31.7%). This can be attributed to the fact that all the religious texts associated with the topic (see Bible, Quran, and scripture) are part of the Islamic tradition, while not all of them are part of the Christian tradition. This can be further substantiated by the subsequent polarization surrounding T04 Islamic Scripture [χ^2 (2, 3408)=51.030, p< .001] where Christians are more likely to engage in negative terminology (45.6%) in comparison to Muslims (34.1%) and Muslims are more likely to use positive terminology (35.1%) in comparison to Christians (26.2%).

Similar patterns of in-group and out-group biases are found for T06 *Jesus' Divinity* [χ^2 (2, 2597)=32.089, p< .001], where Christians (32.3%) use more positive terms than Muslims (22.6%) and Muslims more negative terms (56.7%) than Christians (46.4%), and T07 *Jesus as Prophet* [χ^2 (2, 3989)=17.287, p< .001], in which Muslims are more likely to use positive terms (36.2%) in comparison to Christians (33.5%) and Christians are more likely to use negative terms (38.6%) in comparison to Muslims (32.4%).

To the extent that T02 *Identity Statement* [χ^2 (2, 3551)=9.175, p< .05] was initially associated with Muslim users, it also exhibits instances of positive in-group bias and negative out-group bias. Muslims tend to use more positive words (34.0%) than Christians (29.3%) whereas Christians tend to use more negative words (45.0%) than Muslims (41.4%).

Last, although T05 *Cross Examination* [χ^2 (2, 2557)=11.122, p< .01]was not preferred by any of the groups, it appears that Christians are more likely to invoke negative language (40.2%) when cross-examining their counterparts in comparison to Muslims (33.9%).

Table 4.12: Topic by Sentiment for Christian and Muslim users

		Christian				Muslim				
		Sentiment								
Topic	Label	Negative	Neutral	Positive	Mass	Negative	Neutral	Positive	Mass	X^2
T01	Trinity	412 (24.3%)	511 (30.2%)	770 (45.5%)	1693 (13.8%)	341 (25.4%)	431 (32.1%)	570 (42.5%)	1342 (12.7%)	2.783
T02	Identity Statement	786 (45.0%)	449 (25.7%)	512 (29.3%)	1747 (14.3%)	747 (41.4%)	444 (24.6%)	613 (34.0%)	1804 (17.0%)	9.175*
T03	Scripture	629 (34.5%)	607 (33.3%)	589 (32.3%)	1825 (14.9%)	591 (31.7%)	693 (37.1%)	582 (31.2%)	1866 (17.6%)	6.460*
T04	Islamic Scripture	880 (45.6%)	545 (28.2%)	506 (26.2%)	1931 (15.8%)	504 (34.1%)	454 (30.7%)	519 (35.1%)	1477 (13.9%)	51.030***
T05	Cross Examination	546 (40.2%)	396 (29.2%)	415 (30.6%)	1357 (11.1%)	407 (33.9%)	397 (33.1%)	396 (33.0%)	1200 (11.3%)	11.122**
T06	Jesus' Divinity	774 (46.4%)	356 (21.3%)	539 (32.3%)	1669 (13.7%)	526 (56.7%)	192 (20.7%)	210 (22.6%)	928 (8.6%)	32.089***
T07	Jesus as Prophet	773 (38.6%)	559 (27.9%)	670 (33.5%)	2002 (16.4%)	643 (32.4%)	625 (31.5%)	719 (36.2%)	1987 (18.7%)	17.287***
	Mass	4800 (39.3%)	3423 (28.0%)	4001 (32.7%)	12224 (100%)	3759 (35.4%)	3236 (30.5%)	3609 (34.0%)	10604 (100%)	

Taking into account the results of the topic-sentiment analysis so far, it can be argued that the direction of sentiment polarization for T02 *Identity Statement*, T03 *Scripture*, T04 *Islamic Scripture*, T06 *Jesus' Divinity*, and T07 *Jesus as Prophet* support the hypotheses H_{3a} and H_{3b}. T01 *Trinity* generated positive bias from Christians and Muslims alike because it refers to religious entities that bear positive meanings in both traditions. Finally, the sentiment polarity for T05 *Cross Examination* suggests that Christians might be engaging in a more aggressive cross examination of their Muslim counterparts.

4.2.6 Correspondence Analysis

In order to graphically plot the results of topic-sentiment analysis for the Christian – Muslim debate, I conducted correspondence analysis with Minitab 17.

Table 4.13: Correspondence Analysis for Christian and Muslim Users, Chi-Square Distances

		Christian				Muslim			
		Sentiment							
Topic	Label	Negative	Neutral	Positive	X^2	Negative	Neutral	Positive	X^2
T01	Trinity	80.152	6.869	106.544	193.565	50.435	0.001	16.949	67.385
T02	Identity Statement	2.073	13.083	19.574	34.730	45.032	7.003	4.743	56.778
T03	Scripture	27.881	5.180	5.184	38.245	0.463	55.092	0.004	55.559
T04	Islamic Scripture	37.262	2.259	13.959	53.480	5.827	1.753	0.727	8.307
T05	Cross Examination	0.130	0.413	2.453	2.996	0.469	3.290	0.168	3.927
T06	Jesus' Divinity	95.142	2.867	15.440	113.449	22.624	84.276	97.984	204.884
T07	Jesus as Prophet	5.156	2.561	1.215	8.932	0.292	6.268	12.380	18.940
	Total	247.794	33.232	164.368	445.394***	125.143	157.683	132.956	415.791***

Similarly, with the previous set of comments, a topic-by-sentiment contingency table was produced and the relevant chi-square distances were estimated. Once again, there

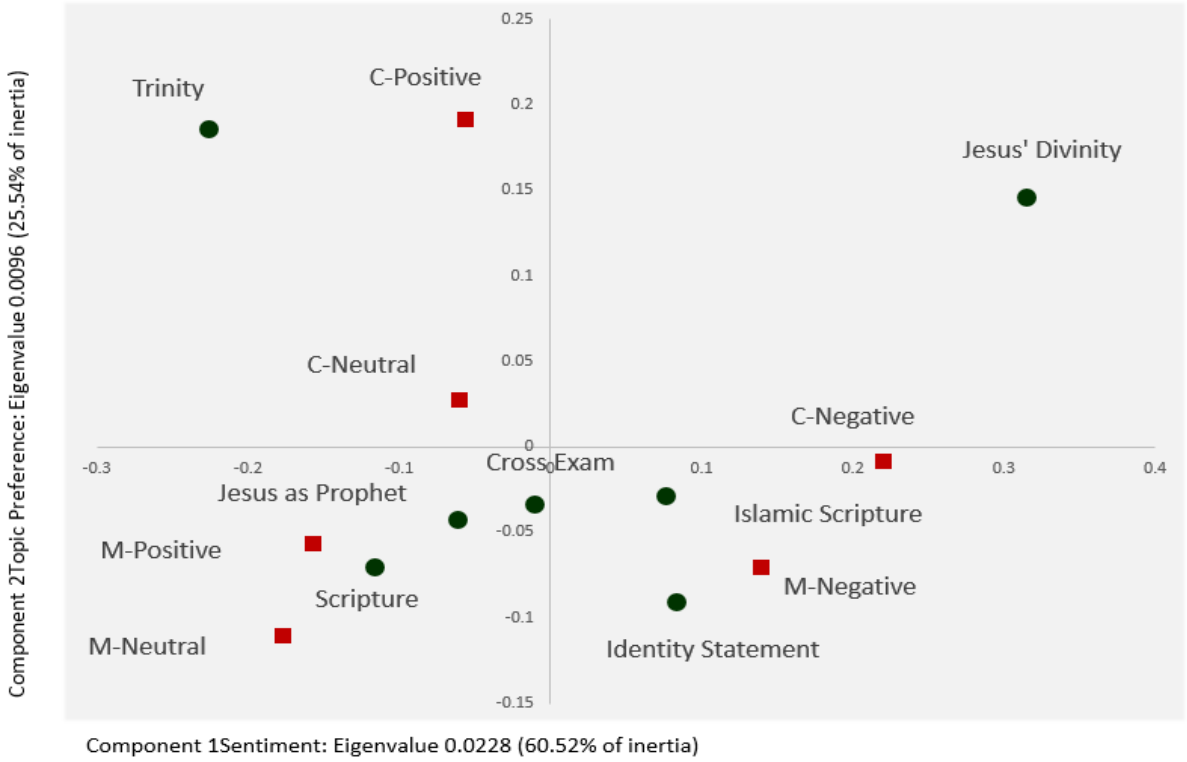
seems to be a statically significant relationship between sentiment and topic in the comments of Christians (χ^2 =445.394, p<.001) and Muslims (χ^2 =415.791, p<.001). The model fit, presented in Table 4.14, also displays similar qualities with the model in case study 1. More specifically, although the chi-square statistic suggests that the fit is good, the model explains a small portion of the variation (3.77%). For the present case study, the two first principal components capture 86.06% of the variability which indicates that the projection in a two-dimensional plot will be very informative. Component 1 bears 60.52% of inertia, while component 2 captures 25.54% of inertia. Therefore, component 1 will be more meaningful in interpreting the data displayed in Figure 4.6.

Table 4.14: Dimensionality Detection and Model Diagnostics

Component	Eigenvalues	% of Inertia	Cumulative %	X^2	p-value
1	0.0228	60.52%	60.52%		
2	0.0096	25.54%	86.06%		
3	0.0033	8.72%	94.78%		
4	0.0018	4.85%	99.64%		
5	0.0001	0.36%	100%		
Total	0.0377			861.176***	0.000

Once again, the topic sentiment map is rather successful in depicting the relationship between topic and sentiment for Christians and Muslims. Interestingly enough, the first component represents sentiment and the second component represents topic preference by identity. Taking into account that component 1 captures a substantially larger size of the variability, sentiment constitutes a better indicator of topic-sentiment polarization. As a reminder, topic preference was a more consequential factor in explaining the variation in the Christian – atheist debate comments. This is an interesting reversal of components.

Figure 4.6: Topic-Sentiment Map for Christian – Muslim Debate.



Sentiment is represented along the x-axis from the most positive sentiment on the left side to the most negative on the right side, as the sentiment points for Muslims and Christians also suggest. Accordingly, topic favorability by identity is plotted along the y-axis with strong Christian preferences occupying the top side and progressively moving towards the topics favored by Muslims on the bottom of the axis. From that point of view, T01 *Trinity* is the only topic found at the top left quadrant and is placed closer to positive and neutral sentiment by both Christians and Muslims and antithetically placed to the negative expressions of the two groups, a connotation of low association of the topic with negative terminology. The bottom left quadrant constitutes the space of topic and sentiment favorability of Muslim users mainly featuring T03 *Scripture* and T07 *Jesus as Prophet*, and marginally T05 *Cross Examination* with Christians expressing some negativity when discussing these topics. In contrast, the bottom right quadrant is characterized by topics T04 *Islamic Scripture* and T02 *Identity Statement* which elicit substantial negative terminology on

behalf of the Christians and less negativity on average on behalf of Muslim users. Not surprisingly, these topics were discursively associated with Muslims in the first place (see Table 4.9).

Last, but not least, the top right quadrant features T06 *Jesus' Divinity* without any sentiment level clearly associated with it. This topic exhibited the highest negative score across the extracted topics (see Figure 4.6.) in the dataset. Although it is negatively discussed by both Christians and Muslims, the latter tended to use more negative language.

Similarly to the case of T05 *Morality* and T03 *Identity Statement* in the Christian – atheist debate, T06 *Jesus' Divinity* demonstrates a high association with negative sentiment partly due to the negative terms that compose the topic (see the descriptive terms "sin", "die", "kill" in Table 4.8). This could explain the unexpectedly high occurrence of negative terms among Christian users who emphasize that their religious leaders died in order to set humanity free from the original sin. That is, the connotations of these words in the context of the discussion about Jesus' nature have a positive emotional bearing.

Finally, it is worth noticing that the Christian domain (top left and right quadrant) in the topic-sentiment map features what can be described as otherworldly topics, ontological in nature, whereas the Muslim domain (bottom left and right quadrant) feature this-worldly topics, of human nature (e.g. Jesus as Prophet), affairs, or creation (e.g. scripture).

4.2.7 Discussion

The present case study sought to examine the content and level of intergroup topic-sentiment polarization among Christian and Muslim YouTube users. Social identity theory was used as the theoretical framework guiding the predictions for the relevance of the user-

generated content, the topic favorability, and the direction of sentiment polarity based on the users' religious identity.

With reference to the content of the commentaries, the topics appear theoretically and intuitively related to core elements of the Christian and Muslim religious traditions (H_1). Furthermore, Christian and Muslim users were found to predominantly favor topics conceptually linked with their respective religions (H_2). The only exception to this pattern was T04 *Islamic Scripture* which would be expected to be discussed more by Muslims but, instead, it emerged more in the comments of Christian users. Why did this happen? In this case, Christian users seem to refer to Islamic religious texts in an attempt to undermine them and highlight their moral inferiority. The Quran and other Islamic scripture are often stereotyped as promoting violence and encouraging Muslims to engage in acts of terror. Such negative attitudes of the Islamic tradition are consistent with the existing literature on anti-Muslim stereotyping (Helly 2004, King and Ahmad 2010, Martin-Munoz 2010, Mohamed and O'Brien 2011, Whitaker 2002, Zine 2004). From the perspective of social identity theory, this type of unfavorable assessments of the outgroup would increase the feelings of superiority of the in-group (Abrams and Hogg 1988, Brown 2000, Hogg and Terry 2000, Hogg, Terry, and White 1995, Hornsey 2008, Trepte 2006) and become the fuel of intergroup antagonism (Rabbie, Schot, and Visser 1989).

The results of the topic-sentiment analysis provide further insights on the effect of religious identity in the expression of positive in-group and negative outgroup bias. Topics that reflected elements of in-group identity were consistently more likely to include more positive terms by the in-group (H_{3a}) and more negative terms by the outgroup (H_{3b}). For the topic which reflected core religious elements for both groups (T01 *Trinity*), there was no difference in positive and negative terms used by Christians and Muslims.

When it comes to hypothesis H_5, the results in support of the assumption that Christians and Muslims will exhibit comparable instances of positive in-group and negative outgroup bias are mixed. On one hand, Christian and Muslim users exhibit the exact same instances of topic favorability and, one way or another (see the previous discussion about T04 *Islamic Scripture*), their preferences can be explained by the propositions of social identity theory. On the other hand, in terms of topic-sentiment polarization, Christian users exhibit fewer instances of positive in-group bias and more instances of negative outgroup bias than their Muslim counterparts. More specifically, out of the 6 topics that exhibited sentiment polarity, Christians tended to use more positive terms than Muslims in only one of them (T06 *Jesus' Divinity*), while they were more likely to use negative terms in comparison to Muslims for the remaining five (see Tables 4.2.5 and 4.2.6 for details). The correspondence analysis map paints a similar picture with only two topics (T01 *Trinity* and T06 *Jesus' Divinity*) in the Christian quadrants of positive (or relatively more positive) bias.

CHAPTER 5

DISCUSSION

Amidst the growing levels of intergroup antagonism and polarization that characterize the current sociopolitical conditions around the world, the deeper understanding of the factors affecting intergroup relations becomes a pressing subject of sociological interest. Social identity theory (SIT), a body of theoretical propositions initially developed 40 years ago, suggests that (a) our social memberships determine our social identities and, in turn, (b) these social identities shape our beliefs, attitudes, and behaviors towards the in-group and the outgroup (Brown 2000, Hogg, Terry, and White 1995, Tajfel and Turner 1979).

The present research project aspired to examine the predictive ability of social identity theory in the context of interreligious communications in an online environment. Making use of the abundance of data available on the web and the development of effective text mining methods, the study takes advantage of the natural priming and quasi-experimental settings of YouTube commentaries in order to assess how (ir)religious identities affect the content of discussions, topic preferences, and the expression of positive in-group and negative outgroup bias in the form of topic-sentiment polarization.

The results from the two case studies revealed several similar patterns and some differences. To begin with, the topics extracted for the Christian – atheist debates and the Christian – Muslim debates were remarkably consistent with the subject of discussion and the (ir)religious identities of the given groups. This can also be considered a testimony to the effectiveness of the quasi-experimental setting in increasing the salience of the examined populations and framing the context of their interactions. Next, religious identity appeared to be a rather good predictor of topic favorability and positive in-group and negative

outgroup topic-sentiment polarization. Although some exceptions exist, the pattern was consistent and in accord with the propositions of the theory. However, it was proved more challenging to assess the effect of the atheist identity on topic preference and topic-sentiment polarization. This can be related to the inherent negative definition of atheism in relation to religion and theism (as lack, negation, or opposition). On the other hand, it can be attributed to the relatively new sense of groupness (Cimino and Smith 2011, 2014, Smith 2013) and/or the increased importance of freethinking and individuality among atheists (Hunsberger and Altemeyer 2006, Smith 2013) which can impede the development of concrete normative narratives. Finally, we also need to consider the unique normative yield of religion (Hogg, Adelman, & Blagg 2010, Hunsberger & Jackson 2005, Silberman 2005) against which several other social identities may lose their ability to direct the conversation.

The effect of negative language or concepts with negative connotations poses recurrent challenges for the topic-sentiment analysis in both case studies. Apart from generally "numbing" the effect of positive in-group and negative outgroup polarization in the Christian – atheist commentaries, it complicates the interpretation of in-group and outgroup bias in certain topics including descriptive terms of negative emotional charge. This has been the case with the topic of morality and identity statement in the Christian – atheist commentary and the topic of Jesus' divinity in the Christian – Muslim commentary. The topic-sentiment correspondence maps have been particularly useful in drawing attention to the oddities of these situations by representing them as isolated data points, or outliers, in their own semantic space.

Accordingly, both correspondence maps effectively capture the variation in topic and sentiment and recreate the spaces of positive in-group and negative outgroup bias by identity. When comparing the results of the topic-sentiment maps for the Christian – atheist

and the Christian – Muslim sets of commentaries, the most interesting difference constitutes the reversal of topic preference and sentiment as the most reliable predictor of the variation in the projected data. In particular, topic preference explains a substantially larger portion of the variability in the first case study, while sentiment captures a higher percentage of the variability in the second. From that point of view, the topic-sentiment polarization among Christian and atheists is driven by the content of any given discussion than the sentiment they attach to it. This is a reasonable result if we take into account the consistently more negative terms used by atheists in comparison to Christians and vice versa. In contrast, differences in sentiment are more consequential than the topics for the Christian – Muslim debate. This seems to be happening due to the limited, mainly theological concepts that the two groups bring to the discussion table and the considerable concept overlapping among topics (e.g. scripture – Islamic scripture, Jesus' divinity – Jesus as prophet). At the same time, both Christians and Muslims occupy the negative and positive sentiment poles depending on the topic.

Beyond the examination of in-group and outgroup bias, the present study aspired to offer some secondary insights about (a) the group meaning, (b) stereotyping, and (c) identity-work and politics. Indeed, there are some limited, more interpretive observations on those elements of (ir)religious identities in contexts of intergroup interactions. These three components appear to be interrelated in the topic of identity statement in both case studies. As users begin to attribute stereotypical representations to the outgroup and attempt to impose external definitions of the group, its members respond by affirming their identity and actively seeking to redefine the group meaning. According to the correspondence maps in case study 1 and case study 2, this pattern is more pronounced among atheists and Muslims. Previous research on social identity theory also indicated that

minority groups can deal with their challenged identities by reconstructing them based on favorable characteristics (Mummendey and Schreiber 1984, van Knippenberg and van Oers 1984, Jackson et al. 1996, Hornsey 2008), attempting to change their public representations (Tajfel and Turner 1979), and/or engaging in intergroup conflict (Seul 1999, Tajfel and Turner 1986). As already mentioned, a similar course of events seems to be taking place in the comments associated with the topic of Islamic scripture which further contributes to the sentiment polarization between Christian and Muslim users.

CHAPTER 6

CONCLUSIONS

The present study constitutes the first part of a larger research agenda which seeks to examine the effect of (ir)religious identities on real-world intergroup interactions. Although the underlying premise of social identity theory – and, to the best of my knowledge, of any identity theory – suggests that the development and articulation of an identity optimally takes place in the interactions with the outgroup, little research has been conducted in interactional contexts and virtually none combining quasi-experimental designs and natural intergroup communications. Undoubtedly, studies with these characteristics would be particularly difficult for any researcher to undertake until a few years ago, further complicated by considerable ethical concerns. Nevertheless, the advent of world wide web 2.0 and participatory social media can provide an invaluable source of data entailing naturally occurring intergroup interactions.

Judging from the consistency and strength of the reported patterns and their conceptual relevance to the propositions of social identity theory (SIT), the present study provides a rather successful attempt to examine the effect of (ir)religious identities on the content of intergroup communications, the topic preferences, and the expression of in-group and outgroup bias in the form of topic-sentiment polarization. Similarly, this study provides important support for the potential of topic-sentiment analysis as a statistical method. By effectively capturing positive in-group and negative outgroup bias, topic-sentiment analysis can be added to the toolkits of social identity theorists who wish to take advantage of big data and user-generated content.

Of course, important limitations do exist and they need to be acknowledged. In the first place, although the data used for this study are very informative on their own merit,

they fail to account for other important sociodemographic factors that could influence the users' narratives and stance towards their social exchanges. However, the natural priming of specific in-group and outgroup (ir)religious identities through the videos' titles, and possibly their content, would render the rest of the social identities of secondary importance. This can be further substantiated by the virtually complete relevance of the extracted topics to the context of interreligious debates.

Moreover, topic modeling and sentiment analysis do not take into account the context in which each word is used. Provided that the same words can attain different meanings and varying emotional charges depending on the setting of their use and who is using them, this information cannot be captured properly. For this reason, a more in-depth examination of the relevant comments has often complemented the analysis to help guide the interpretation of the topics and the results of the topic-sentiment analysis.

Another important limitation has to do with the fact that the comments included in the analysis come from a larger set of data. To the extent that the comments were selected based on the users' identity and from the moment that not all users participating in the commentaries were Christians, Muslims, or atheists (depending on the case study), chances are that several of these comments were generated during interactions with users from other walks of life. In other words, the present study cannot fully account for who interacts with whom and whether the comments and the emotional reactions they reflect are also associated with the identity of the counterparts. For that matter, the second prong of the related research agenda aims to address this limitation through a social network analysis attempting to examine whether outgroup members are more likely to elicit negative sentiment than in-group members among others, as social identity theory proposes.

Last, future research should also examine the point in which topic-sentiment polarization begins to take place, its peak, and the conditions under which it becomes reduced. This type of information can be proven theoretically beneficial and can suggest ways to promote positive interreligious dialogue.

APPENDIX A

DESCRIPTIVE STATISTICS OF COMMENTS

	RDCA	RDCM
Mean	18.56	28.41
Standard Error	1.32	3.61
Median	3	6
Mode	1	1
Standard Deviation	70.37	105.26
Kurtosis	296.87	324.29
Skewness	14.75	15.41
Range	1819	2426
Minimum	1	1
Maximum	1820	2427

APPENDIX B

TOPIC EXTRACTION WITHOUT TOP USERS

Table B.1. Emergent Topics without Top Commenters for Christian – Atheist Debate

Topic	Label	Descriptive Terms	#Docs
T01	**Burden of Proof**	+evidence, +exist, +claim, +god, +jesus	7020
T02	**Jesus the Savior**	+jesus, +sin, +love , +god, +life	5346
T03	**Identity Statement**	+christian, +atheist, +stupid, +religion, +claim	6872
T04	**Scientific Theories**	+science, +evolution, +theory, +big, +bigbang	5484
T05	**Morality**	+morality, +objective, +wrong, +kill, +subjective	3396
T06	**Belief**	+belief, +god, +religion, +atheism, +atheist	7545
T07	**Cross Examination**	+answer, +question, +comment, +reason, +point	4472
T08	**Bible**	+bible, +read, +book, +write, +word	6296
T09	**Creation**	+god, +exist, +know, +create, +universe	6682
T10	**Truth Claims**	+true, +know, +want, +lie, +wrong	6564

Table B.2. Emergent Topics without Top Commenters for Christian – Muslim Debate

Topic	Label	Descriptive Terms	#Docs
T01	**Trinity**	+god, +son, +father, +jesus, +spirit	2931
T02	**Identity Statement**	+muslim, +christian, +islam, +religion, +true	3230
T03	**Scripture**	+bible, +quran, +read, +scripture, +word	3438
T04	**Islamic Scripture**	+allah, +quran, +muhammad, +word, +islamscrip	2318
T05	**Cross Examination**	+answer, +question, +evidence, +lie, +claim	2286
T06	**Jesus' Divinity**	+sin, +die, +god, +jesus, +man	2384
T07	**Jesus as Prophet**	+prophet, +muhammad, +jesus, +pbuh, +islam	3048

APPENDIX C

SYNONYM LIST

TERM	TERMROLE	PARENT	PARENTROLE
adolph		hitler	
agnostic-atheist		atheist	
agnosticism		agnostic	
argument		claim	
atheistic		atheist	
athiest		atheist	
athiests		atheist	
bang		bigbang	
belive		believe	
biblical		bible	
cherry		cherrypick	
christ		jesus	
christopher		hitchens	
commie		communist	
communist		communism	
corinthian		bible	
corinthians		bible	
correct		true	
creationism		creation	
creationist		creation	
cristian		Christian	
darwin		evolution	
data		evidence	
refuse		deny	
designer		creator	
deuteronomy		bible	
devil		satan	
disciple		follower	
divine		God	
evolutionary		evolution	
evolutionist		evolution	
evolve		evolution	
exegesis		explain	
exodus		bible	
explanation		explain	
fairytale		tale	
fairy-tale		tale	
fallacious		wrong	
fallacy		wrong	
foolish		stupid	
frank		turek	
g -d		God	
g-d		God	
genesis		scripture	
george		pell	

TERM	TERMROLE	PARENT	PARENTROLE
glenn		jaclyn	
govt		government	
hitch		hitchens	
homo		homosexual	
homosexuality		homosexual	
hypothesis		assumption	
idiotic		stupid	
irrational		illogical	
incorrect		wrong	
intellectually		intellect	
intelligent design		creation	
isa		jesus	
jaclynglenn		jaclyn	
james		kjv	
jehovah		God	
john		bible	
koran		quran	
lane		WLCraig	
leviticus		bible	
literalism		literal	
literally		literal	
logic		reason	
logically		reason	
lord		God	
lucifer		satan	
luke		bible	
magical		magic	
mankind		humanity	
matthew		bible	
monkey		ape	
moral		morality	
morally		morality	
moron		stupid	
moses		bible	
murder		kill	
murderer		kill	
muslin		muslim	
myth		tale	
nkjv		kjv	
noah		bible	
nonbeliever		atheist	
non-believer		atheist	
objectively		objective	
observable		observe	
observation		observe	

TERM	TERMROLE	PARENT	PARENTROLE
pascal		pascalwager	
Philippian		bible	
ppl		people	
preacher		preach	
prove		evidence	
psalm		scripture	
quran		quran	
qu'ran		quran	
real		true	
reply		answer	
respond		answer	
response		answer	
resurection		resurrect	
retard		stupid	
revelation		bible	
richard		dawkins	
rock		stone	
sam		harris	
saviour		savior	
scientific		science	
scientifically		science	
shit		crap	
slaughter		kill	
smart		intelligent	
straw		strawman	
study		read	
stupidity		stupid	
theism		theist	
theistic		theist	
timothy		bible	
unbeliever		atheist	
verse		scripture	
wager		pascalwager	
william		WLCraig	
wlc		WLCraig	
xtian		Christian	
xtians		Christian	
yahweh		God	
false		wrong	
proof		evidence	
faith		belief	
existence		exist	
argue		claim	
idiot		stupid	
knowledge		know	

TERM	TERMROLE	PARENT	PARENTROLE
scientist		science	
lack		absence	
reality		true	
truth		true	
fact		evidence	
sinner		sin	
logical		reason	
catholic		christian	
realize		understand	
testament		bible	
liar		lie	
design		creation	
definition		define	
failure		fail	
imaginary		tale	
mistake		wrong	
deity		God	
gay		homosexual	
conversation		discuss	
converse		discuss	
discussion		discuss	
rational		reason	
gospel		bible	
forever		eternity	
reasonable		reason	
origin		source	
authority		power	
physics		science	
perspective		worldview	
demon		evil	
acknowledge		recognize	
salvation		save	
denial		deny	
fault		wrong	
debunk		refute	
desire		want	
speak		talk	
believe		belief	
muslum		muslim	
muslums		muslim	
prophethood		prophet	
islumuc		islam	
islamic		islam	
al-quran		quran	
scriptural		scripture	

TERM	TERMROLE	PARENT	PARENTROLE
pornography		porn	
plz		please	
pls		please	
allahu		allah	
alla		allah	
triune		trinity	
juda		judah	
muhammads		muhammad	
jesu		jesus	
haddith		islamscript	
hadith		islamscript	
haddiths		islamscript	
surah		islamscript	
sura		islamscript	
hadiths		islamscript	
ahadith		islamscript	
relgion		religion	
relegion		religion	
worshiper		worship	
believe		belief	
qurans		quran	
messianic		messiah	
allahs		allah	
yashua		jesus	
injil		injeel	
lier		lie	
satanist		satan	
muhhamad		muhammad	
yeshua		jesus	
paganism		pagan	
quranic		quran	
qur		quran	
qu		quran	
terrorize		terror	
terrorist		terror	
terrorism		terror	
christains		Christian	
muhowmad		muhammad	
mohamed		muhammad	
mohammed		muhammad	
mohammad		muhammad	
muhammed		muhammad	
islum		islam	
trinitarian		trinity	
yhwh		God	

TERM	TERMROLE	PARENT	PARENTROLE
christain		Christian	
muhamad		muhammad	
hater		hate	
issa		jesus	
o.t.		bible	
ot		bible	
nt		bible	
pedophilia		pedophile	
meccan		mecca	
curropt		corrupt	
christianty		christianity	
christs		jesus	

APPENDIX D

CHANGE-POINT DETECTION TEST

	RDCA	RDCM
Qn	72.2829	64.3210
P-value	0.000055	0.000115
n	25.00	25.00
khat	10.00	7.00

APPENDIX E

SAMPLE COMMENTS

Table E.1. Sample Comments with High Loadings on T03 *Identity Statement* for Christian – Atheist Debate

Comment ID	Comment	Loading
CA111393	If you an atheist then why the fuck do you want to argue with me? That's the stupidest most retarded, most idiotic thing I've ever heard of. Shouldn't you argue with Christians or Muslims or Jehovah Witnesses ? You can't be an Atheist. Your too fucking stupid to be an atheist. I've never seen two atheist arguing with each other about religion. I've never two gays argue with each other about gay rights. I've never seen two feminist argue about women's rights. This is a first. It's retarded, dumb.	0.413
CA016496	2 r u a atheist or a Christian Cuz I'm Catholic.	0.383
CA098683	I'm an atheist and I've got to say that the Christian made good arguments but they only work if you're Christian. You can't try and prove something with the thing that you're trying to prove. You can't debate an atheist or agnostic with spiritual arguments.	0.383
CA013311	I am a Christian but it seems every Christian or atheist video k see the atheist makes more sense the Christians seems idiotic and living in a fantasy world	0.365
CA043596	religion can change. many times. many atheists were raised christians/catholics	0.357
CA078958	same. I think if Christians actually read their own book they'd also turn atheist. We atheists know more about the bible than Christians do.	0.349
CA028548	Wow! This is bad. From the videos I've watched of her exposure to Christians, I would probably be an atheist too, and I'm a Christian! The problem with Christians is they do not know how to be good Christians. A "good" Christian knows they are not a "good" Christian and will conduct themselves accordingly. Wow! SMH!	0.344
CA155271	all athetists are not like that, I am an atheist but I love christianity, i even say that i am a christian if someone asks, I just don't really believe in it.	0.344
CA184193	A non-believer cannot have the Holy Spirit unless they accept the ABC's of Becoming a Christian. Admit, Believe, and Commit. A Christian is someone who is Committed to the Faith. Non-Believers aren't Committed to The Faith. Those who claim they were Christians and became atheist's weren't Christians at all. They were and are liars and cannot be trusted, because they lied in the past and are lying now.	0.313
CA019123	ignorant Atheists? I think You will find that most atheists know more about the bible that most Christians.	0.309

Table E.2. Sample Comments with High Loadings on T02 *Identity Statement* for Christian – Muslim Debate

Comment ID	Comment	Loading
CM038514	this is not a debate, this is a muslim speaking to a christian, the problem that the muslims have is that they think that their religion is better then other religions, i am christian and i will never converd to moon-propaganda	0.357
CM066131	by debating with our Muslim friendGaming Guru I got the impression that our Muslims friends believe,that Christianity is a "FALSE" RELIGION,because we as Christians won't let MUSLIM TERRORISTS murder us,while at the same time, those same	0.312
CM058477	u can't ... because we are more than billion people . in fact we Muslims the biggest religion in the world and the most expansion.. did u know that in Europe the Muslim more than christian... if we are aggressive we can kill all Christian in the world and finish that shit . but we will not to it cuz we Muslim that mean peace not like your religion killing and racist	0.307
CM034608	Yeah ur so right i never force anyone to be with my FAITH it's a choice but understand this is my duty to tell you the truth remember that muslims kill CHRISTIANS because of their faith....on the other hand Christians never kill muslims becau	0.305
CM065459	You have to face reality, Islam is the most growing religion of the world and a lot of christians are leaving christianity to embrace Islam. That's because they are seeking the truth.. you can say whatever you want (right here on Youtube) b	0.302
CM059449	Islam thinks they have the answer for everything and they think that they can explain Christianity well that's not real Christianity has more meaning than love, power and sin, something that people who don't have enough faith cannot believe. I as a Roman Catholic love Jesus and will forever be Roman Catholic and I hope the whole Islam religion will fall apart and burn in hell.	0.301
CM067199	What do you mean Christians have 'no religion,' can you explain? Christians had a religion almost 600 years before Islam.	0.295
CM051913	if Christians are killing muslims its not going on in Europe . What we have in Europe is Muslims killing the french and any body else you Muslims can..See your religion can never know love. Aa we see almost daily in the news . But we will never give in to a death CULT .. I full agree with you there Peter. Islam is Evil there is no peace in this religion. Muhammad taught to torture and Kill, There is only peace in following our Lord Jesus the Christ (Yeshua) there is no salvation under any other name!	0.294
CM058701	I read a few comments and people are saying fuck Christians or fuck Muslims or fuck both religions. I am a Christian but I don't hate Muslims. I would put my life on the line or anyone of any race or religion. Christian are not suppose to be god, there suppose to try to do god's wish and that is to love everyone. With that being said stop hating on other religions. I know if someone disrespects my lord in front of me, that person will feel my wrath in fist form. If someone disrespected another person's religion in front of me, they would again feel my wrath in fist form. I am a Christian but I respect other religion's because in my bible god says love everyone and that's what I do. I might not like some people at times but I would die for them if I needed to. This hating people for the way they look or what they believe is childish, stupid, and out right WRONG!	0.294
CM029852	I am a Muslim, although I don't like your comment, I am sure that your a good person in real life. The Media have misguided all of us about each other. Wish all the best Brother. Islam just like Christianity is full of love, its just some muslim and Christian brothers have misunderstood their religion.	0.283

APPENDIX F

ANALYSIS OF VARIANCE ON SENTIMENT

Table F.1. Analysis of Variance on Sentiment for Comments with and without Topic for Christian – Atheist Debate

Topic	Label	With Topic		Without Topic		F
		Mean	Stand. Dev	Mean	Stand. Dev.	
T01	**Burden of Proof**	-.0700	2.365	-.1563	1.901	12.509***
T02	**Jesus the Savior**	-.0411	3.469	-.1552	1.728	15.969***
T03	**Identity Statement**	-.3424	2.615	-.1106	1.846	88.766***
T04	**Scientific Theories**	.1478	2.855	-.1812	1.829	147.854***
T05	**Morality**	-.4224	3.507	-.1211	1.794	84.916***
T06	**Belief**	.0363	2.661	-.1771	1.818	81.208***
T07	**Cross Examination**	.0164	2.806	-.1598	1.871	34.815***
T08	**Bible**	-.0422	2.761	-.1585	1.833	20.327***
T09	**Creation**	-.1142	2.715	-.1488	1.818	2.012
T10	**Truth Claims**	-.1270	2.639	-.1464	1.846	.611

Table F.2. Analysis of Variance on Sentiment for Comments with and without Topic for Christian – Muslim Debate

Topic	Label	With Topic		Without Topic		F
		Mean	Stand. Dev	Mean	Stand. Dev.	
T01	**Trinity**	.4718	2.376	-.2672	2.01	342.191***
T02	**Identity Statement**	-.4824	3.130	-.1214	1.825	92.265***
T03	**Scripture**	-.1065	2.436	-.1866	2.000	4.681*
T04	**Islamic Scripture**	-.4199	2.676	-.1341	1.953	55.784***
T05	**Cross Examination**	-.1912	3.078	-.1724	1.919	.189
T06	**Jesus' Divinity**	-.6446	3.363	-.1178	1.850	150.668***
T07	**Jesus as Prophet**	-.0727	2.650	-.1945	1.938	11.509**

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